

# Service Manual

 **PIONEER®**  
*The Art of Entertainment*

ORDER NO.  
**RRV1943**

DVD PLAYER

# DV-606D

- Refer to the service manual RRV1889 for DV-505/KU.

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

Type	Model	Power Requirement	Remarks
	DV-606D		
KU	○	AC120V	
KC	○	AC120V	

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# 1. CONTRAST OF MISCELLANEOUS PARTS

NOTES: ● Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.

● The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part.

Therefore, when replacing, be sure to use parts of identical designation.

● When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560  $\rightarrow$  56 x 10<sup>1</sup>  $\rightarrow$  561 ..... RD1/4PU  $\overline{561}$  J

47k  $\rightarrow$  47 x 10<sup>3</sup>  $\rightarrow$  473 ..... RD1/4PU  $\overline{473}$  J

0.5  $\rightarrow$  R50 ..... RN2H  $\overline{R50}$  K

1  $\rightarrow$  1R0 ..... RSIP  $\overline{1R0}$  K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k  $\rightarrow$  562 x 10<sup>1</sup>  $\rightarrow$  5621 ..... RN1/4PC  $\overline{5621}$  F

● Reference Nos. indicate the pages and Nos. in the service manual for the base model.

## ■ CONTRAST TABLE

DV-606D/KU,KC and DV-505/KU are constructed the same except for the following :

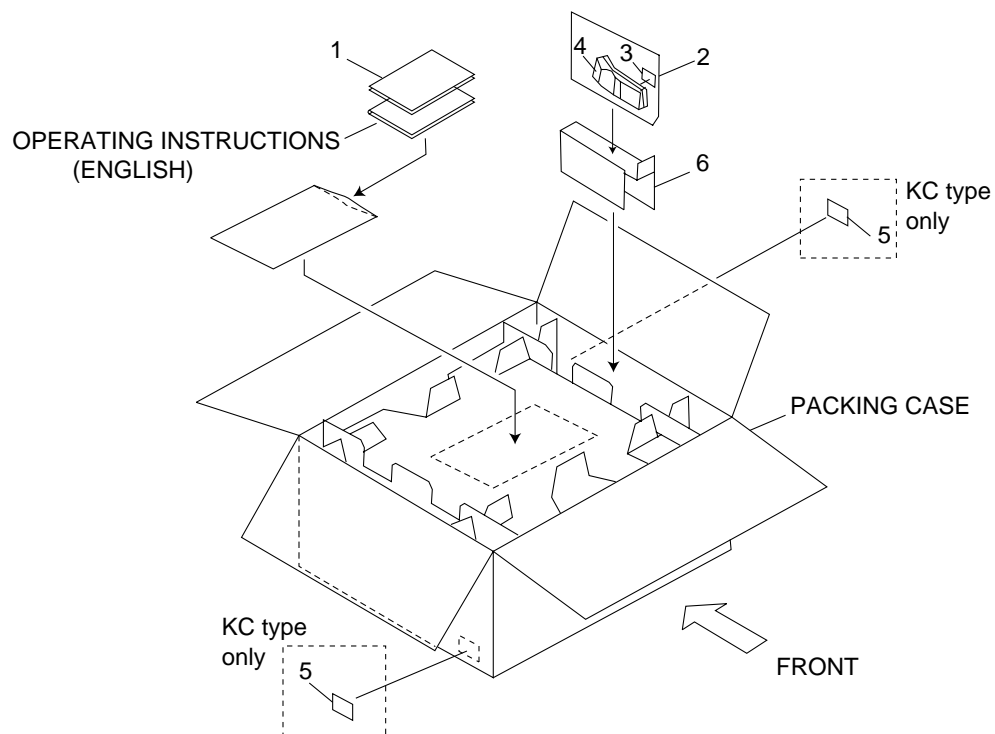
Ref. No.	Mark	Symbol and Description	Part No.			Remarks
			DV-505/KU	DV-606D/KU	DV-606D/KC	
P5- 1 P5- 2 P6- 2 P6- 3	NSP	<b>ASSEMBLIES</b>				
		FLKY Assy	VWM1789	VWM1794	VWM1794	
		└ FLKB Assy	VWG1873	VWG1878	VWG1878	
		└ PWSB Assy	VWG1879	VWG1939	VWG1939	
		DVDM Assy	VWS1326	VWS1327	VWS1327	
P3- 2 P3- 3 P3- 6 P3- 6 P3- 7	NSP	AVJB Assy	VWV1572	VWV1606	VWV1606	
		<b>PACKING</b>				
		Operating Instructions (French)	Not used	Not used	VRC1067	No.1
		Warranty Card	ARY1044	ARY1044	ARY7020	
		Dry Cell Battery (R6P,AA)	VEM-013	Not used	Not used	
P3- 9 P3-12	NSP	Dry Cell Battery (R03,AAA)	Not used	VEM-022	VEM-022	
		Operating Instructions (English)	VRB1183	VRB1195	VRB1195	
		Remote Control Unit (CU-DV008)	VXX2540	Not used	Not used	
		Battery Cover	VNK3703	Not used	Not used	
		Remote Control Unit (CU-DV019)	Not used	VXX2572	VXX2572	No.2
P3-15 P3-17		Battery Cover	Not used	VNK3864	VNK3864	No.3
		Upper Cover	Not used	VNK3865	VNK3865	No.4
		Packing Case	VHG1716	VHG1753	VHG1753	
		KC Label	Not used	Not used	VRW1716	No.5
		Remote Control Holder	Not used	VHC1044	VHC1044	No.6
P4-18		<b>EXTERIOR SECTION</b>				
		65 Label	ORW1069	ORW1069	Not used	
P5- 4 P5- 5		<b>FRONT PANEL SECTION</b>				
		Front Panel	VNK4091	VNK4290	VNK4290	
		FI Lens	VNK4149	VEC1985	VEC1985	
		Display Button	Not used	VNK3649	VNK3649	No.7
		Button	Not used	VNK4287	VNK4287	No.8
		DTS Label	Not used	VRW1732	VRW1732	No.9
		Earth Plate	Not used	VNE2085	VNE2085	No.10
P6-19 P6-21 P6-22		<b>BOTTOM VIEW SECTION</b>				
		Flexible Cable (14P)	VDA1646	VDA1684	VDA1684	No.11
		Rear Panel	VNA1903	VNA1971	VNA1971	
		Housing Assy (4p)	VKP2157	VKP2190	VKP2190	
		Flexible Cable (7p)	Not used	VDA1685	VDA1685	No.12
		(AVJB CN102 – DVDM CN804)				

Note: ● The numbers in the remarks column correspond to the numbers on "■ EXPLODE VIEWS". Refer to "■ EXPLODED VIEWS"

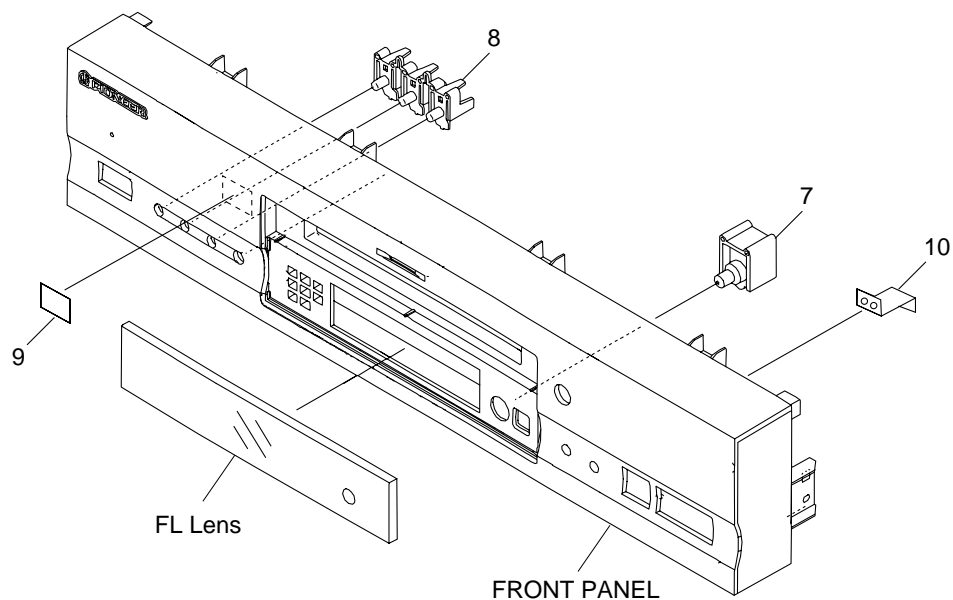
● For ASSEMBLIES, refer to "■ CONTRAST OF PCB ASSEMBLIES", "2. SCHEMATIC DIAGRAM" and "3. PCB CONNECTION DIAGRAM".

## ■ EXPLODED VIEWS

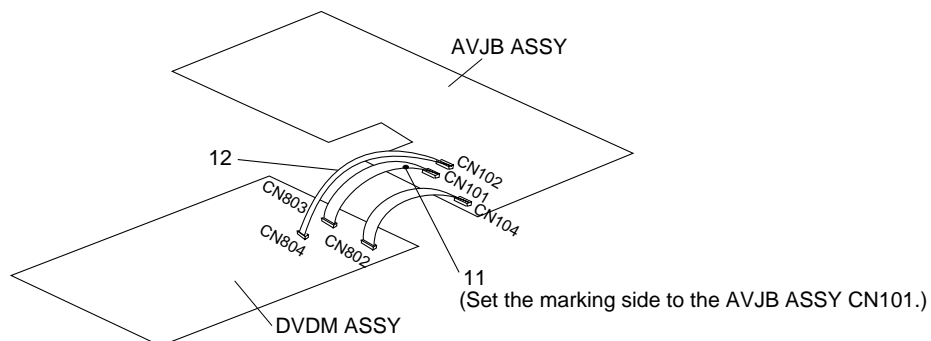
### ● PACKING SECTION



### ● FRONT PANEL SECTION



### ● BOTTOM VIEW SECTION



## DV-606D

### ■ CONTRAST OF PCB ASSEMBLIES

#### **F** FLKB ASSY

VWG1878 and VWG1873 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		VWG1873	VWG1878	
	Q101,Q104,Q106-Q108 D101-D108 R101-R108 R124 R126,R606  R127 R137 S101	Not used Not used Not used RS1/10S0R0J Not used  RS1/10S0R0J Not used Not used	PDTC124EK SLP4118C51H RS1/10S331J Not used RS1/10S0R0J  RS1/10S273J RS1/10S683J RSG1030	

#### **F** PWSB ASSY

VWG1939 and VWG1879 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		VWG1879	VWG1939	
	R202 R213 R214 R215 S203-S205	RS1/10S181J Not used Not used Not used Not used	RS1/10S331J RS1/10S432J RS1/10S622J RS1/10S103J RSG1030	

#### **H** DVDM ASSY

VWS1327 and VWS1326 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		VWS1326	VWS1327	
	IC602 IC6003 IC801 F9141,F9921 L9143,L9930,L9931  C606,C607 R1 R2 R141,R920,,R921,R935 R143  R641 R642 R830 R864-R866,R925 R923,R924,R926,R932  R930,R931,R962 R937 R938 R940 CN804	Not used VYW1559 MB86371A Not used Not used  Not used Not used RS1/16S103J RS1/10S0R0J RS1/16S0R0J  Not used Not used Not used Not used RS1/16S220J  RS1/16S220J RS1/16S331J RS1/16S220J RS1/16S220J Not used	PDK026C VYW1546 MB86371 VTF1096 QTL1011  CKSRYF104Z16 RS1/16S223J RS1/16S333J Not used Not used  RS1/16S0R0J RS1/16S103J RS1/16S201J RS1/16S101J RS1/16S101J  Not used RS1/16S271J RS1/16S561J RS1/16S331J VKN1411	

Mark	No.	Description	Part No.
<b>SEMICONDUCTORS</b>			
	IC351,IC451,IC551	BA4560F	
	IC151	CY2081SL-611	
	IC251	NJM4556AM	
△	IC861	NJM78M05FA	
△	IC851	NJM78M08FA	
	IC201,IC301,IC401	PCM1716E	
	IC231	PD0236AM	
	IC241,IC501	TC4W53F	
	IC601,IC651	TC74HCU04AF	
	IC121	TC7S02F	
	IC141,IC171	TC7SH02F	
	IC111,IC131	TC7WU04F	
	Q254,Q356,Q454,Q501,Q502	2PB709A	
	Q554	2PB709A	
	Q751,Q805,Q808,Q852,Q911	2PD601A	
	Q912,Q931,Q932,Q951,Q952	2PD601A	
△	Q851	2SB1260	
	Q701,Q702,Q801,Q802,Q871	2SC1740S	
	Q251,Q252,Q257,Q258,Q351	2SD2114K	
	Q352,Q451,Q452,Q551,Q552	2SD2114K	
	Q762,Q772,Q933,Q953	PDTA124EK	
	Q161,Q241,Q253,Q354,Q355	PDTC124EK	
	Q357,Q453,Q503,Q553,Q761	PDTC124EK	
	Q771,Q783,Q804,Q807,Q901	PDTC124EK	
	D191,D231,D451,D804	MA111	
	D551	UDZS6.2B	
<b>COILS AND FILTERS</b>			
	L603,L653	PTL1003	
	F111,F121,F131,F141,F151,F152	VTF1096	
	F161,F171,F193,F201-F205	VTF1096	
	F231,F241,F301-F304	VTF1096	
	F401-F404,F601,F631,F651,F853	VTF1096	
	F607,F657	VTF1097	
	L112,L132	VTL1098	
<b>CAPACITORS</b>			
	C114,C133	CCSQCH120J50	
	C255,C256,C355,C455,C456	CCSQCH221J50	
	C113	CCSQCH270J50	
	C134,C257,C258,C357	CCSQCH330J50	
	C457,C458	CCSQCH330J50	
	C263,C264,C267,C268	CCSQCH331J50	
	C363,C463,C464	CCSQCH331J50	
	C563,C564	CCSQCH331J50	
	C194,C706,C707,C757,C758	CCSQCH470J50	
	C806,C807,C919,C939,C959	CCSQCH470J50	
	C632	CEAL101M6R3	
	C359,C459,C460	CEAT100M50	
	C213,C214,C313,C314,C354	CEAT101M10	
	C360,C413,C414,C560,C602	CEAT101M10	
	C604,C652,C654,C752,C855	CEAT101M10	
	C552,C863,C874	CEAT101M16	
	C704,C804,C915,C916	CEAT102M6R3	
	C556	CEAT1R0M50	
	C873	CEAT221M16	
	C207,C208,C307,C308	CEAT470M16	

Mark	No.	Description	Part No.
	C407,C408,C572		CEAT470M16
	C936,C956		CEAT471M6R3
	C253,C254,C259,C260		CEBA101M16
	C353,C453,C454,C559,C566		CFTYA104J50
	C753		CKSQYB103K50
	C366		CKSQYB104K25
	C234,C364		CKSQYB105K10
	C111,C112,C121,C122		CKSQYF103Z50
	C131,C132,C141,C142		CKSQYF103Z50
	C151,C152,C161,C162		CKSQYF103Z50
	C171,C172,C201-C204		CKSQYF103Z50
	C209-C212,C231,C232		CKSQYF103Z50
	C241,C242,C301-C304		CKSQYF103Z50
	C309-C312,C401-C404		CKSQYF103Z50
	C409-C412,C603,C653		CKSQYF103Z50
	C851,C854,C861,C862		CKSQYF103Z50
	C871,C872,C875		CKSQYF103Z50
	C192,C251,C351		CKSQYF104Z25
	C451,C501,C551,C571,C601		CKSQYF104Z25
	C605,C631,C633,C651		CKSQYF104Z25
	C655,C702,C751,C755,C756		CKSQYF104Z25
	C802,C852,C913,C914,C933,C934		CKSQYF104Z25
	C953,C954		CKSQYF104Z25
	C607,C657		CKSQYF104Z50
	VC131 (20pF)		VCM-008

## RESISTORS

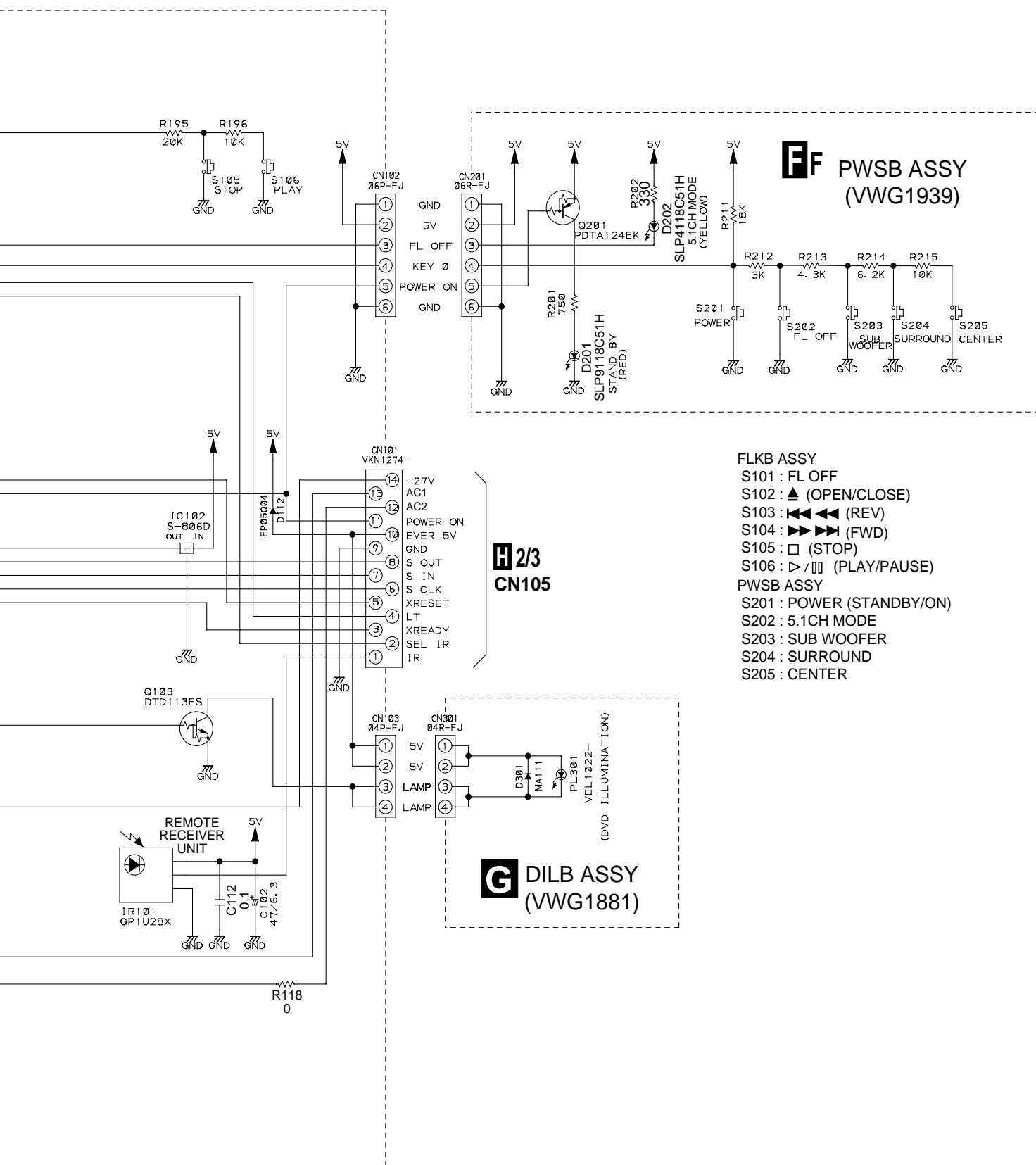
R205,R232,R305,R405	RA4C101J
R209,R309,R409	RA4C470J
R756,R757	RN1/10SC68R0D
R707,R708R807,R808,R918,	RN1/10SC75R0D
R938,R958	RN1/10SC75R0D
R934,R935,R954,R955	RN1/10SE1002D
R501,R502	RN1/10SE1202D
R253,R254,R353,R453,R454,R555	RN1/10SE1602D
R358,R933,R953	RN1/10SE3301D
R257,R258,R357,R457,R458	RN1/10SE3302D
R557	RN1/10SE3302D
R551-R553,R556	RN1/10SE5602D
R554	RN1/10SK1103D
Other Resistors	RS1/10S□□□ J

## OTHERS

101	PIN JACK(6P)	AKB7012
CN112	4P MINI DIN SOCKET	AKP7010
CN103	4P CONNECTOR	B4B-PH-K-S
JA104	OPTICAL LINK OUT	GP1F32T
JA111	JACK FOR RMCT	RKN1004
JA109	3P PIN JACK	VKB1105
JA105	2P PIN JACK	VKB1106
JA108	2P PIN JACK	VKB1107
JA102	4P PIN JACK	VKB1108
CN102	7P FFC CONNECTOR	VKN1238
CN101	14P FFC CONNECTOR	VKN1245
CN104	17P FFC CONNECTOR	VKN1248
	SCREW PLATE	VNE1948
X111	CRYSTAL RESONATOR(16MHz)	VSS1081
X131	CRYSTAL RESONATOR (18.432MHz)	VSS1116



Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



#### FLKB ASSY

- S101 : FL OFF
- S102 : ▲ (OPEN/CLOSE)
- S103 : ◀◀◀ (REV)
- S104 : ▶▶▶ (FWD)
- S105 : □ (STOP)
- S106 : ▷/▢ (PLAY/PAUSE)

#### PWSB ASSY

- S201 : POWER (STANDBY/ON)
- S202 : 5.1CH MODE
- S203 : SUB WOOFER
- S204 : SURROUND
- S205 : CENTER

**H 2/3**  
**CN105**

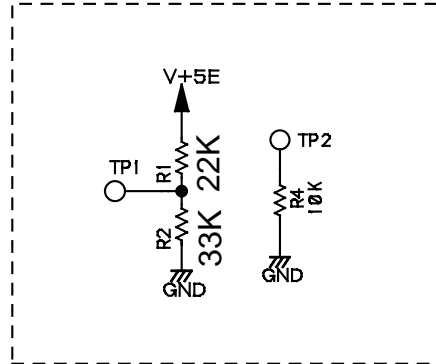
**G DILB ASSY**  
**(VWG1881)**

## 2.2 DVDM ASSY

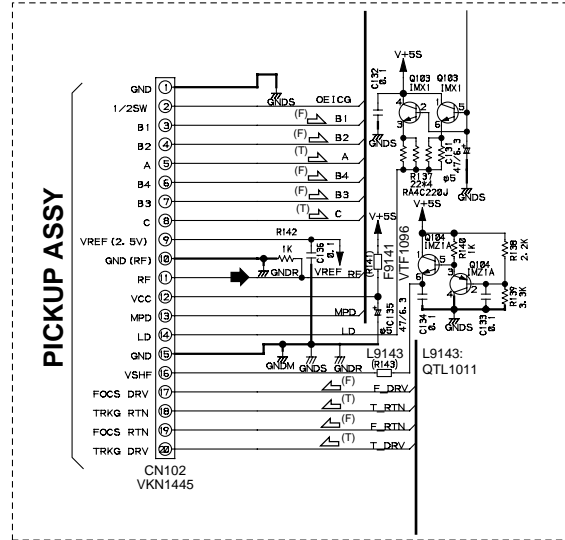
### HF DVDM ASSY (VWS1327)

#### HF 1/3 SECTION

•The differences of adjacencies to TP1

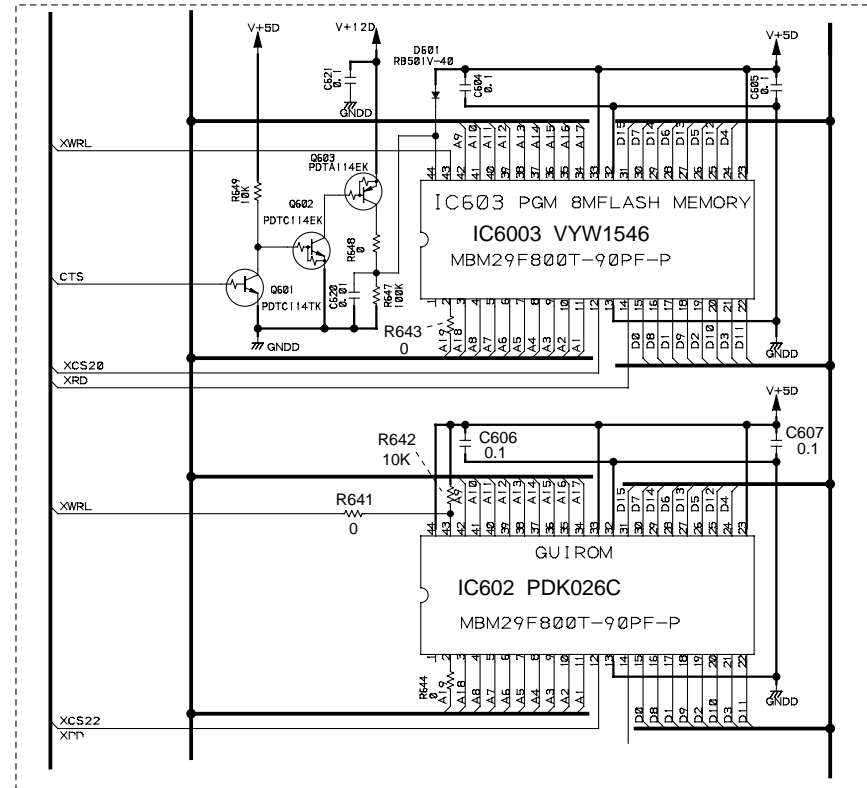


•The differences of adjacencies to CN102



#### HF 2/3 SECTION

•The differences of adjacencies to IC6003





A



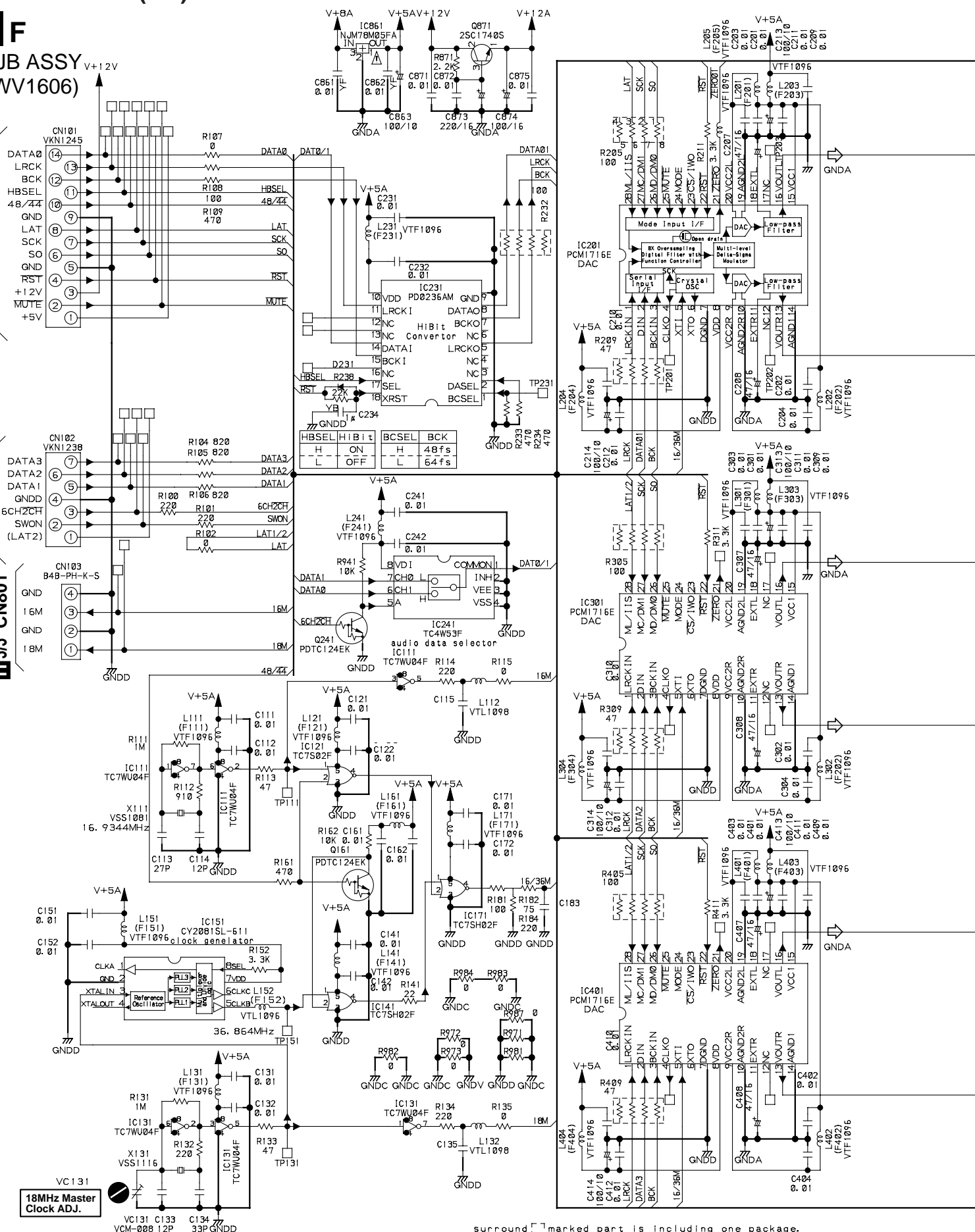
## 2.3 AVJB ASSY(1/2)

**IF**  
AVJB ASSY  
(VWV1606)

H 3/3F CN803

**H 3/3F CN804**

**H 3/3 CN801**



surround ☐ marked part is including one package.  
All NPN transistors' (except on digital transistor) pin number are swapped.



```

11*: 12*: 16MHz
13*, 14*, 15*: 18MHz (/36MHz)
16*, 17*, 18*: clock selector
23*: HiBit converter
2***: L, R/FL, FR channel DAC
3***: C, LFE channel DAC
3***: LS, RS channel DAC
odd: left channel
even: right channel

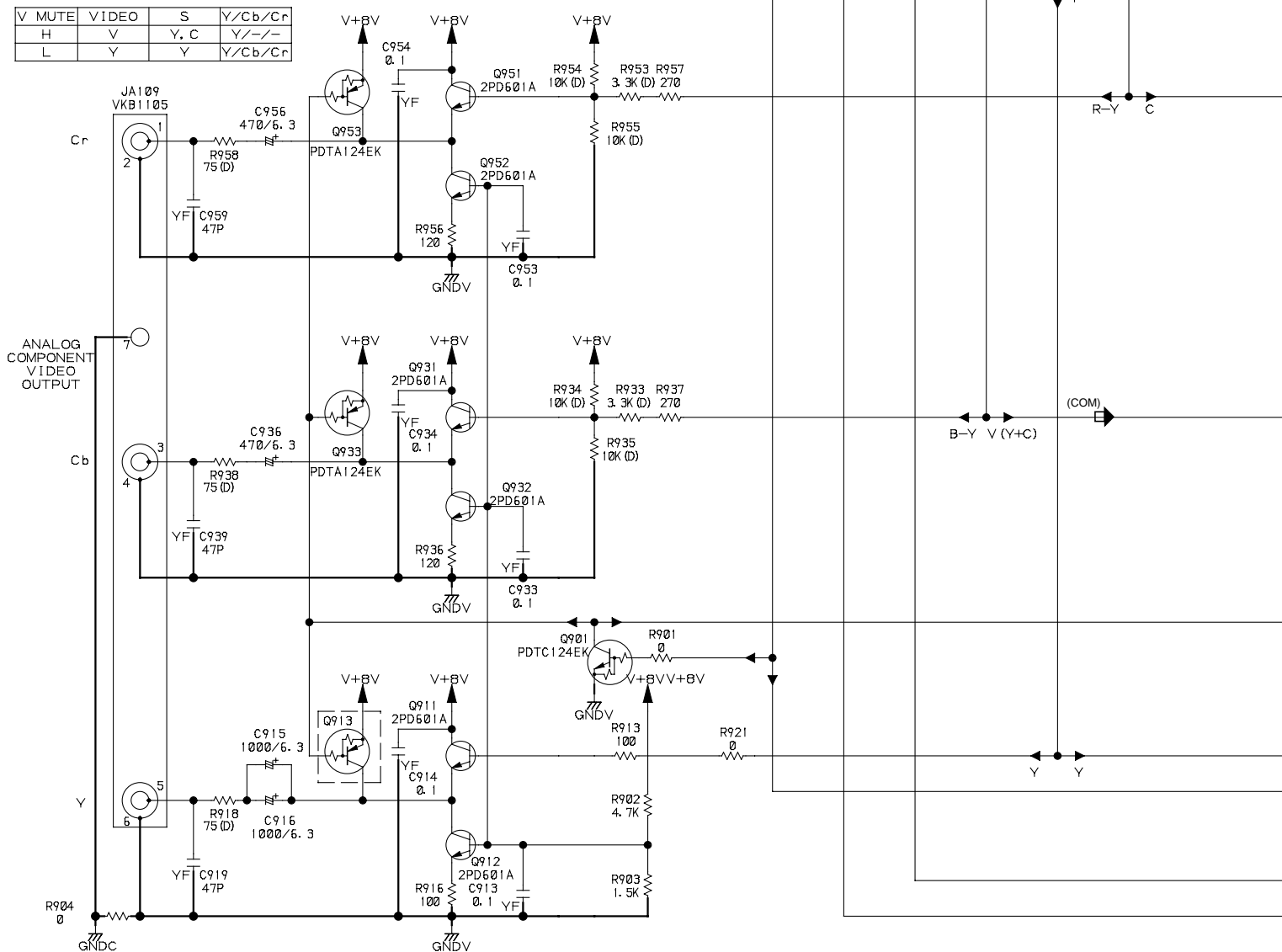
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2.4 AVJB ASSY(2/2)

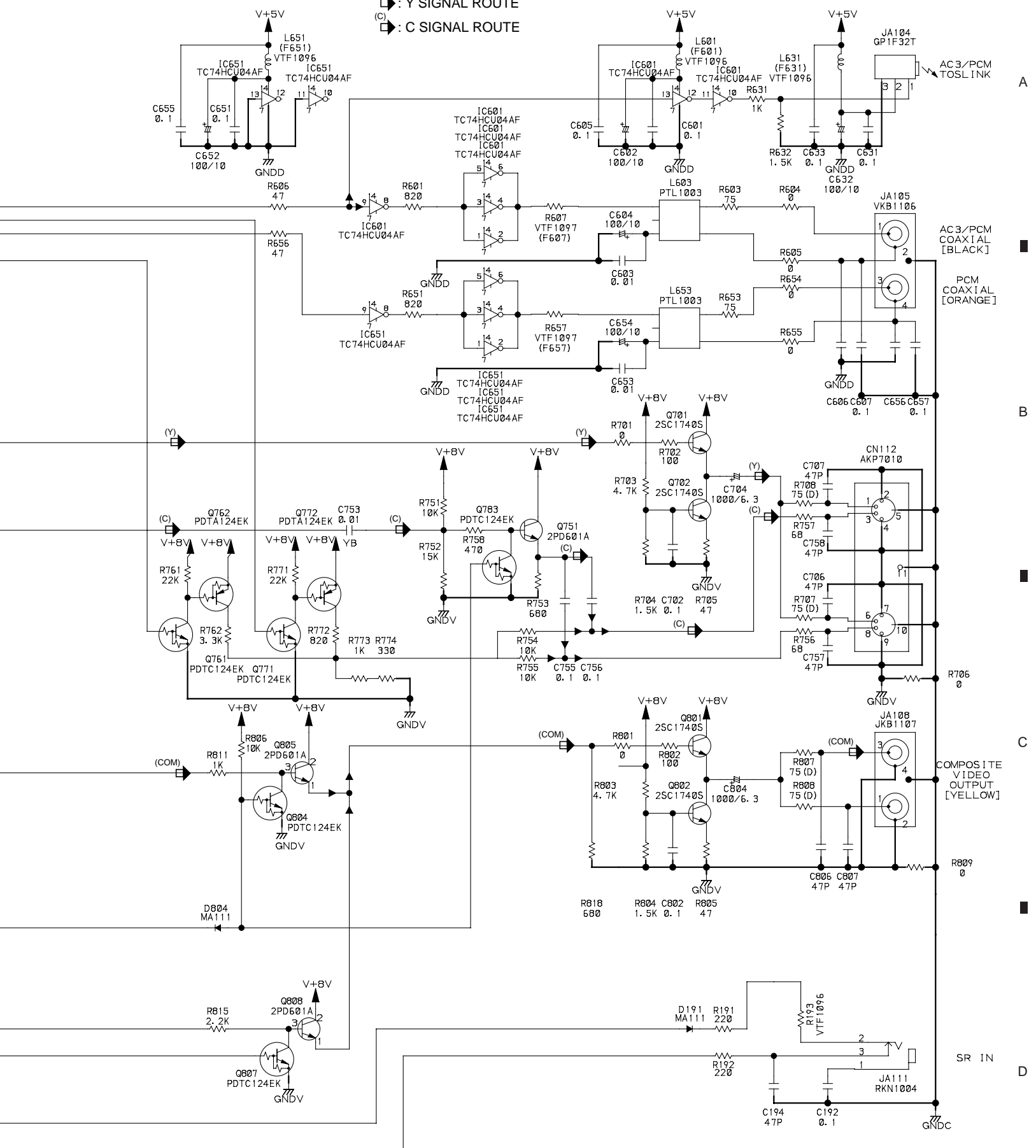
**IF**  
AVJB ASSY  
(VWV1606)

**H** 3/3F CN802

V MUTE	VIDEO	S	Y/Cb/Cr
H	V	Y, C	Y/-/-
L	Y	Y	Y/Cb/Cr

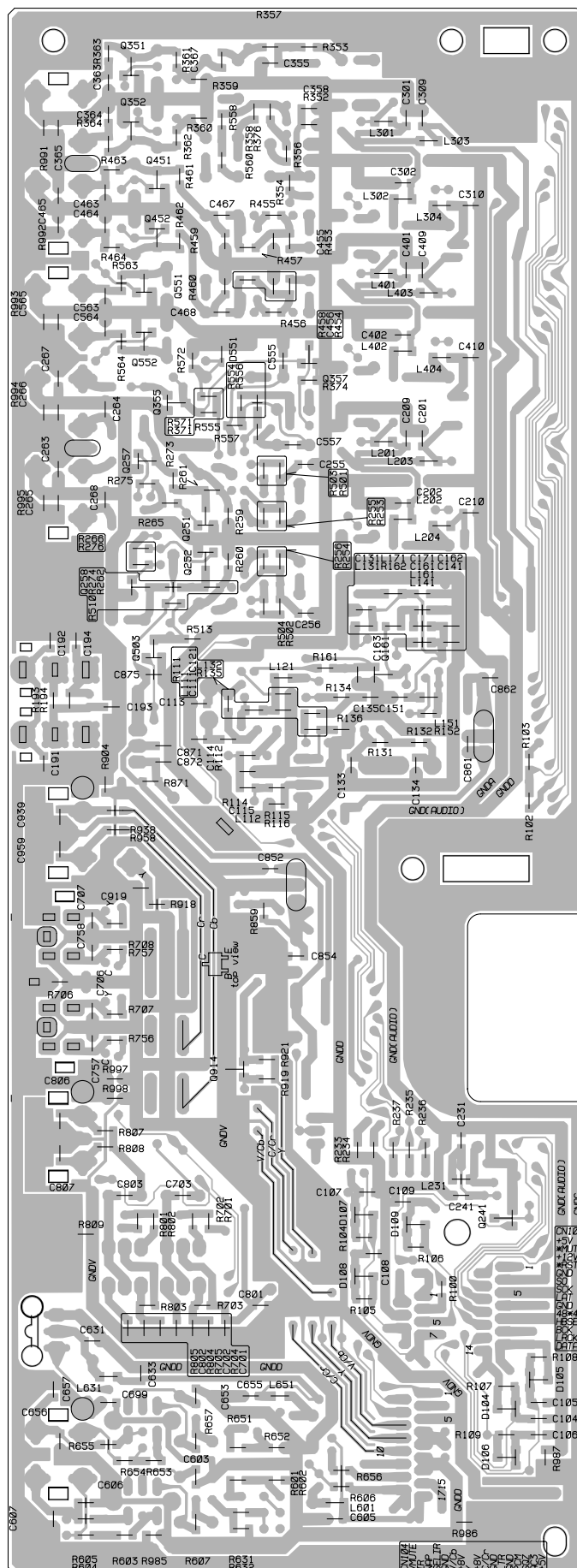


(COM) □: COMPOSITE VIDEO SIGNAL ROUTE  
 (Y) □: Y SIGNAL ROUTE  
 (C) □: C SIGNAL ROUTE







**SIDE B**

Q351  
Q352  
Q451  
Q452  
Q551  
Q552  
Q357  
Q355  
Q257  
Q251  
Q252  
Q503  
Q161

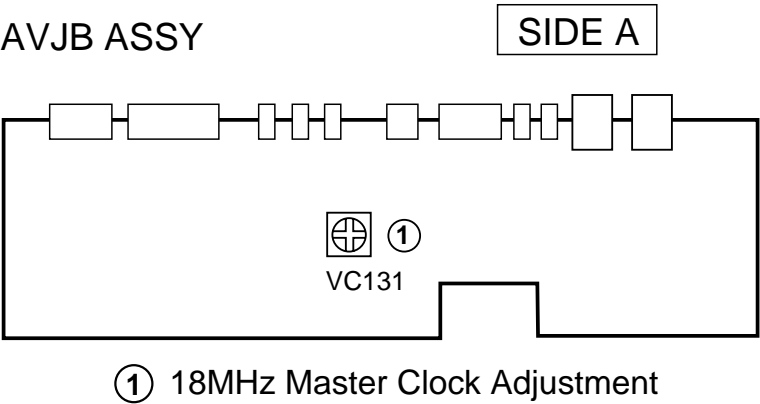
D

(VNP1644-A)

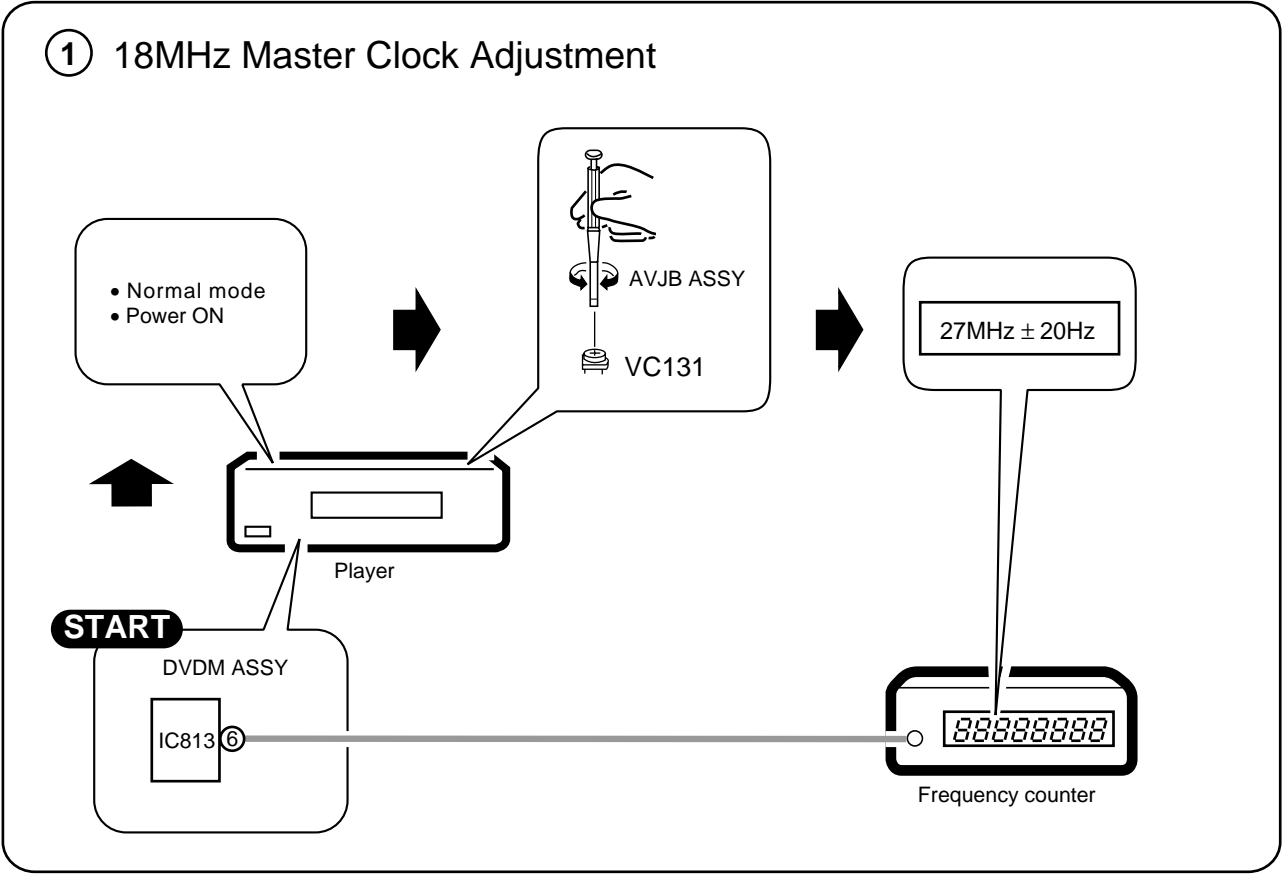
4. ADJUSTMENT

Note: Adjustment points and items are the same as those of base model except for the following.

■ADJUSTMENT POINT



■ELECTRICAL ADJUSTMENT





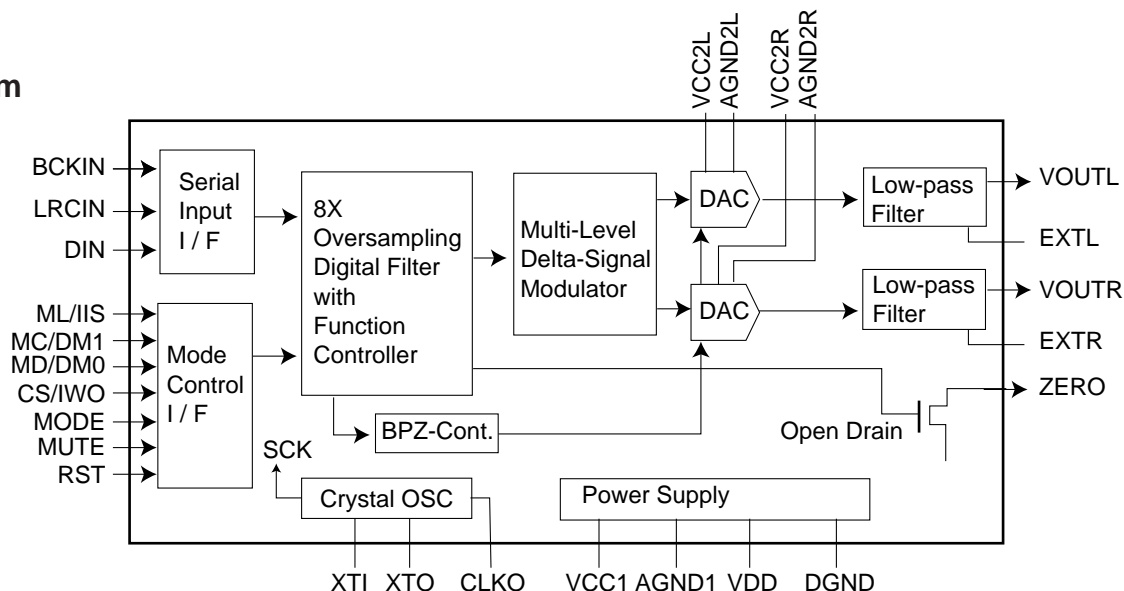
## 5. IC INFORMATION

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

### ■ PCM1716E (AVJB ASSY : IC201,IC301 and IC401)

#### • DAC

#### ● Block Diagram



#### ● Pin Function

No.	Pin Name	I/O	Function
1	LRCIN	IN	Left & right Clock Input. This clock is equal to the sampling rate-fs. *1
2	DIN	IN	Serial Audio DATA Input
3	BCKIN	IN	Bit Clock Input for Serial Audio DATA
4	CLKO	OUT	Buffered Output of Oscillator. Equivalent to System Clock.
5	XT1	IN	Oscillator Input (External Clock Input)
6	XTO	OUT	Oscillator Output
7	DGND	-	Digital Grand
8	VDD	-	Digital Power +5V
9	VCC2R	-	Analog Power +5V
10	AGND2R	-	Analog Grand
11	EXTR	OUT	R-ch, Common Pin of Analog Output Amp
12	NC	-	Non Connection
13	VOUTR	OUT	R-ch Analog Voltage Output of Audio Signal
14	AGND1	-	Analog Grand
15	VCC1	-	Analog Power +5V
16	VOUTL	OUT	L-ch Analog Voltage Output of Audio Signal
17	NC	-	Non Connection
18	EXTL	OUT	L-ch, Common Pin of Analog Output Amp
19	AGND2L	-	Analog Grand
20	VCC2L	-	Analog Power +5V
21	ZERO	OUT	Zero Data Flag
22	RESET	IN	Reset. When this pin is low, the DF & Modulator are held in reset. *2
23	CS/IWO	IN	Chip Select/Input Format Selection. When this pin is low, the Mode Control is effective. *3
24	MODE	IN	Mode Control Select (H:Software, L:Hardware) *2
25	MUTE	IN	Mute Control *2
26	MD/DM0	IN	Mode Control, Data/De-emphasis selection 1 *2
27	MC/DM1	IN	Mode Control, BCK/De-emphasis selection 1 *2
28	ML/IIS	IN	Mode Control, WDCK/Input format selection 1 *2

\*1 : Schmit Trigger input

\*2 : Schmit Trigger input with pull-up resistor

\*3 : Schmit Trigger input with pull-down resistor

# Service Manual

## SERVICE GUIDE

ORDER NO.  
RRV1896

DVD PLAYER

# DV-505

# DV-S9

DVD LD PLAYER

# DVL-909

## CONTENTS

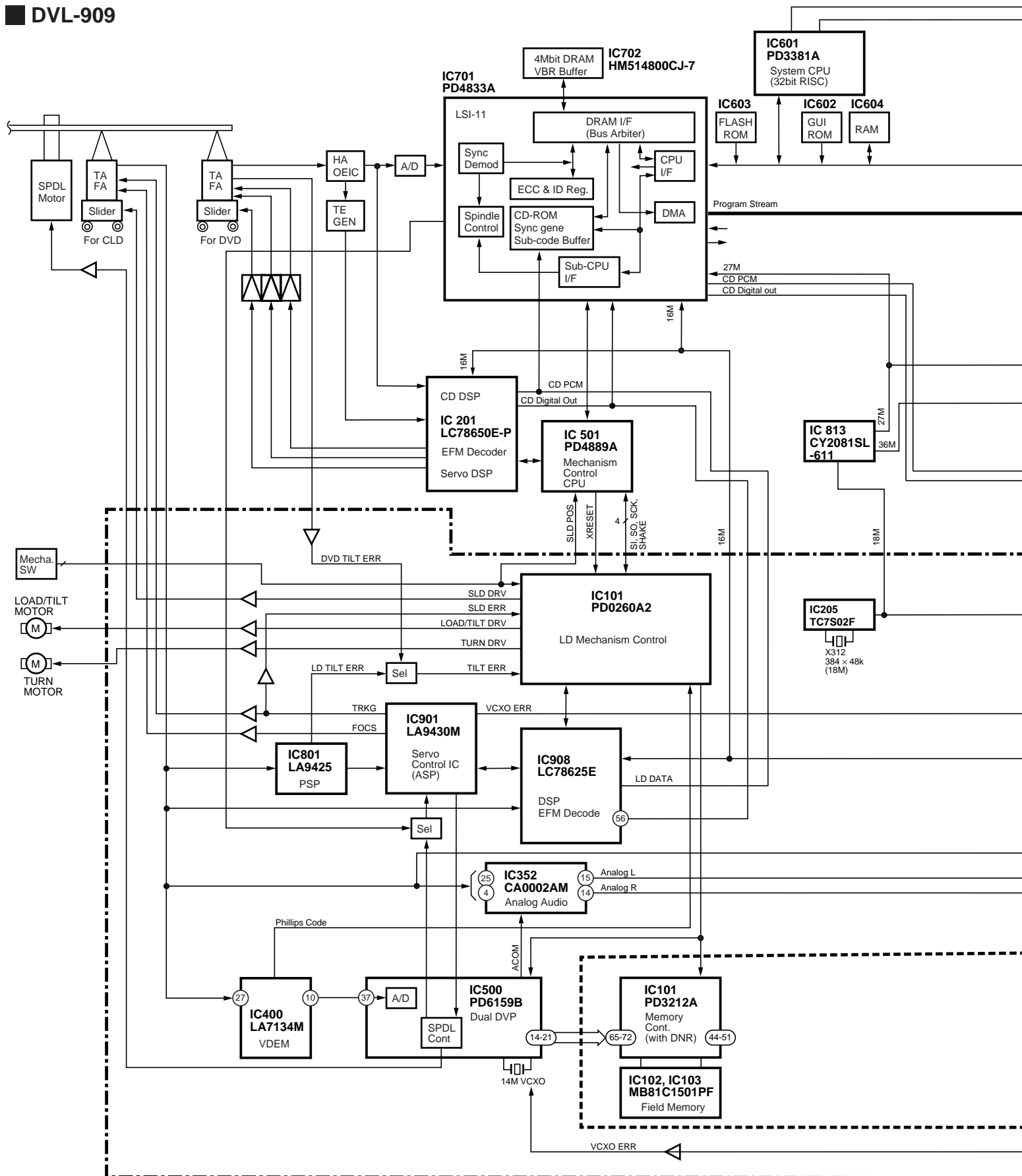
1. CIRCUIT DESCRIPTION .....	2
2. CIRCUIT DESCRIPTIONS	
FOR DV-S9 AND DV-09 .....	10
3. TEST MODE .....	13
4. IC INFORMATION .....	22
5. FL INFORMATION .....	47

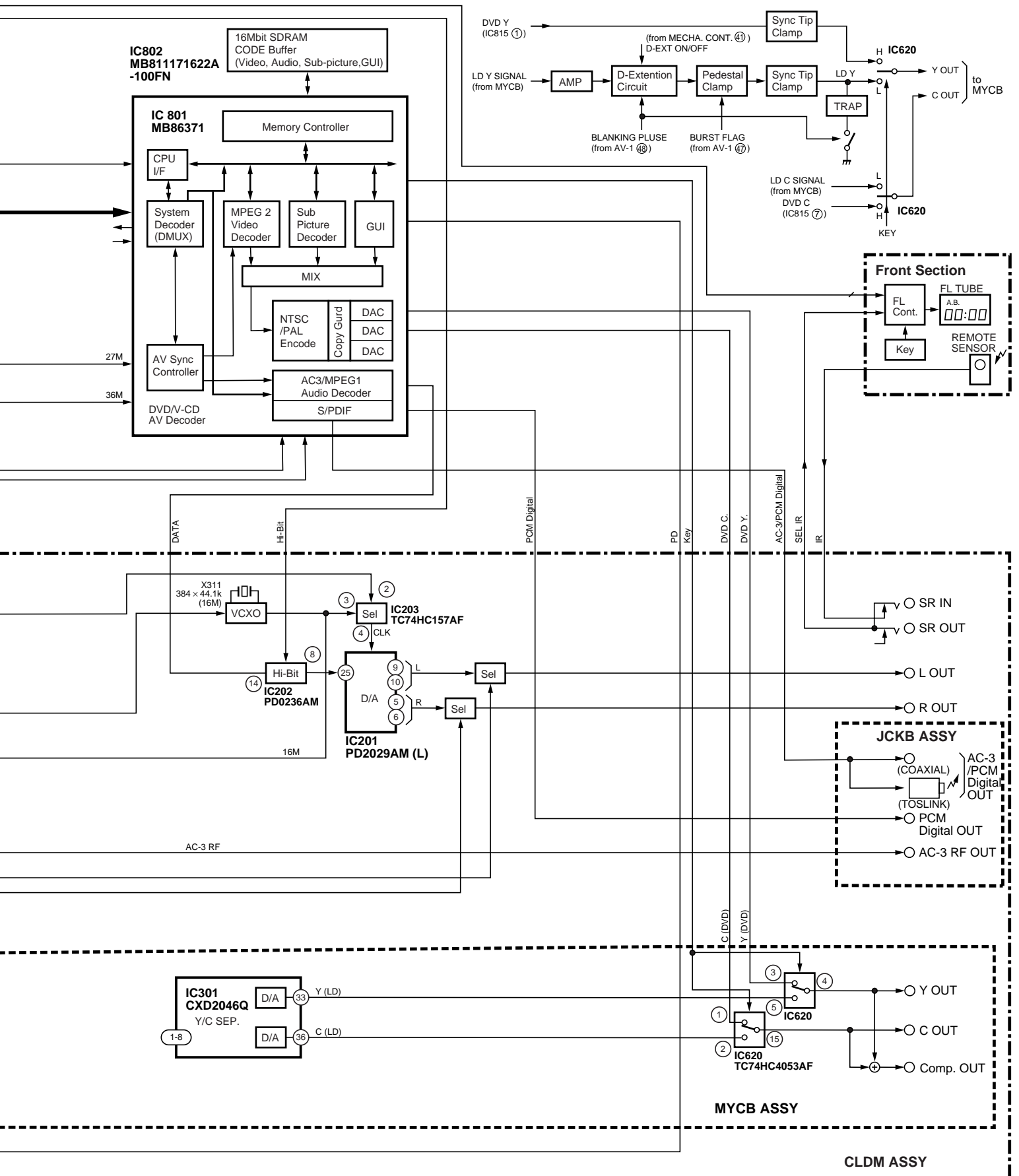
**■ DV-505**





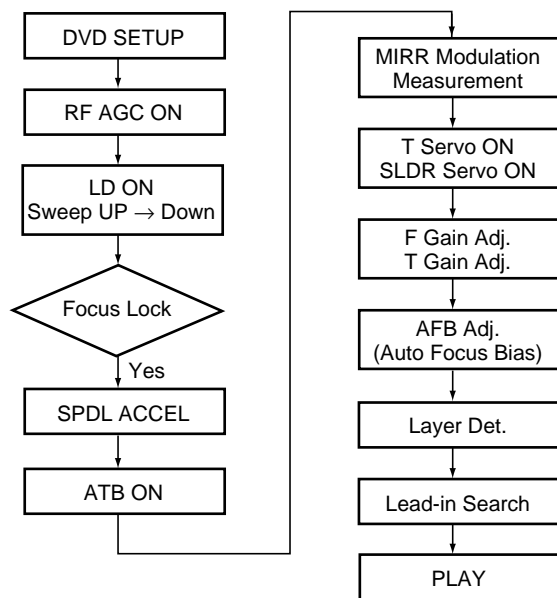
## DVL-909





## 1.2 EXPLANATION OF EACH MOVEMENT

### 1.2.1 Sequence Up to Playback



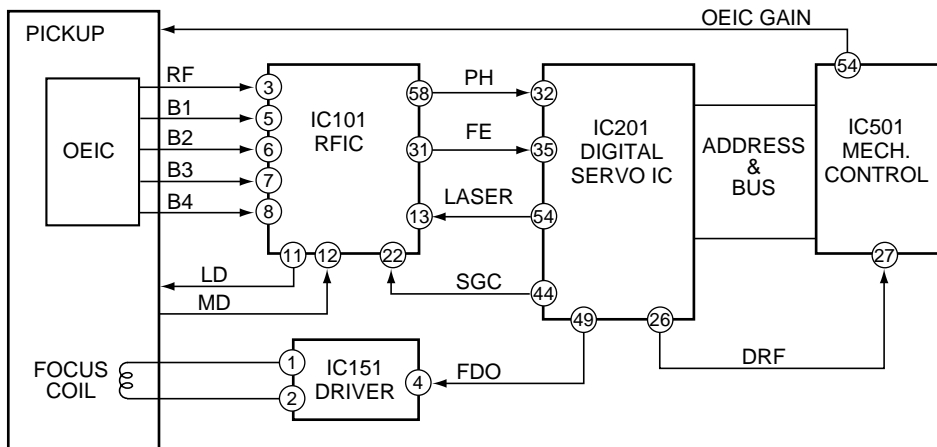
### 1.2.2 Focus Servo

FE generated in the RF IC is sent to the Digital servo IC.

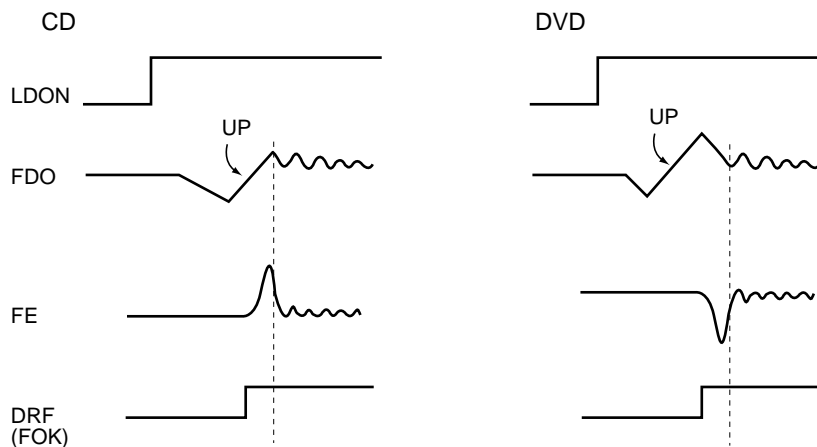
For a DVD, the servo is turned on during the transition from “Up” to “Down” of the first-order sine wave. For a CD, it turns on during the transition from “Down” to “Up” of the first-order sine wave.

When the servo is turned on, the level of PH (the envelope of the bright side of RF) increases, and DRF becomes H. The kick-brake pulses, such as those for FOCUS jump, are also output from pin 49 of IC201.

#### • FOCUS SERVO



#### • FOCUS LOCK TIMING



### 1.2.3 Tracking / Slider Servo

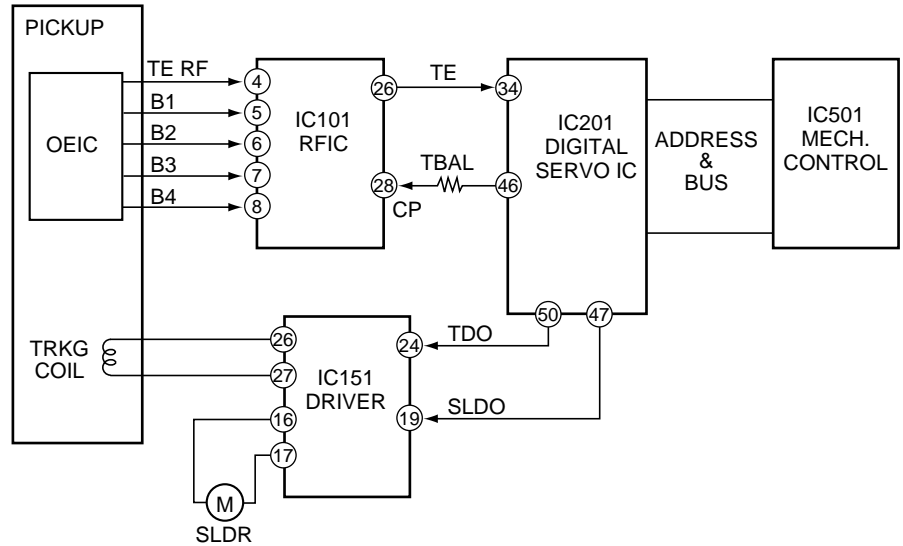
**ATB:** The tracking balance compensation is achieved by outputting the offset from the TBAL output at pin 46 of the digital servo IC, and by biasing the charge pump resistor for phase-difference error of RFIC.

The difference is detected by processing TE at pin 34 of IC 201 with an internal digital equalizer.

**TDO:** In addition to the servo output, the low-band components, such as the kick-brake for jump, are added for TDO output.

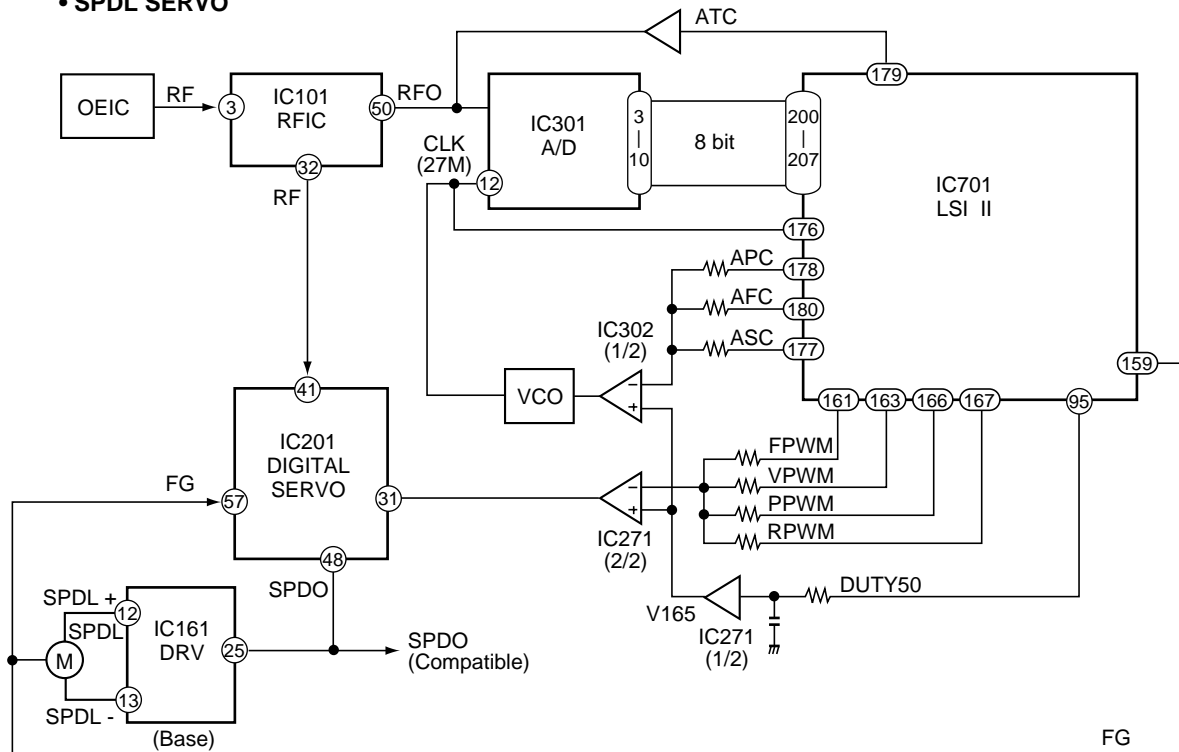
**SLDO:** The low-band components of TE are processed by the internal digital equalizer, and deadband is added for SLDO output. The offset voltage for pickup movement is also included in the SLDO output.

#### • TRACKING / SLIDER SERVO



### 1.2.4 SPINDLE SERVO

#### • SPDL SERVO



For a CD, the RF signal output from pin 32 of the RF IC is converted to binary in IC201. By comparing the binary value with the reference CLK (clock), the SPDL ERR signal is output from pin 48.

For a DVD, the SPDL ERR signal is generated from the PWM signal output from LSI-II. Upon receiving this signal via pin 31, IC201 also outputs it from pin 48, switching from the CD SPDL ERR signal.

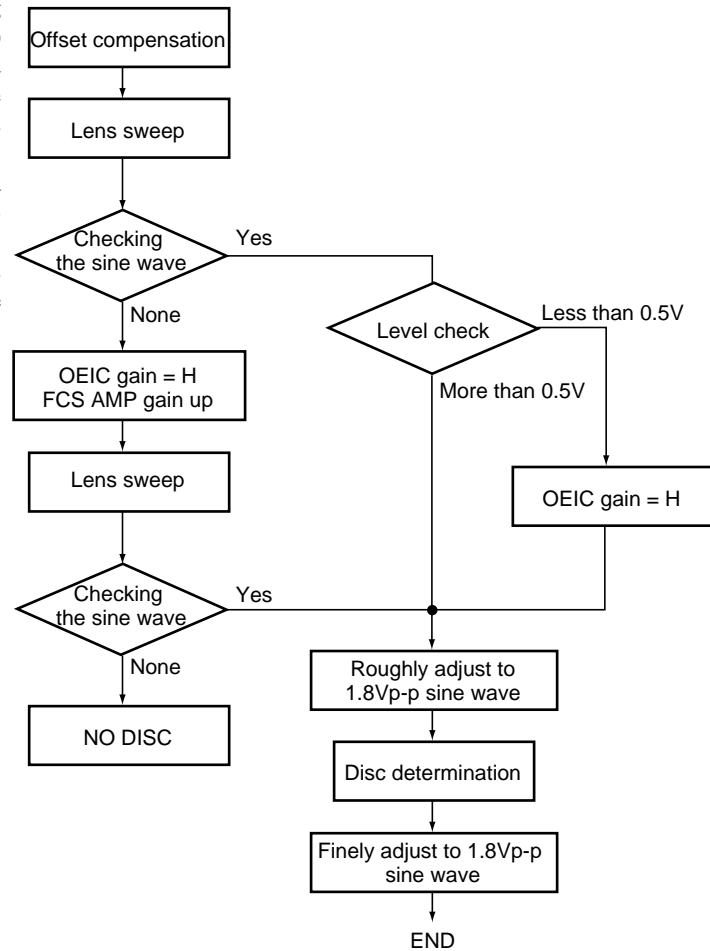


### 1.2.5 Disc Determination

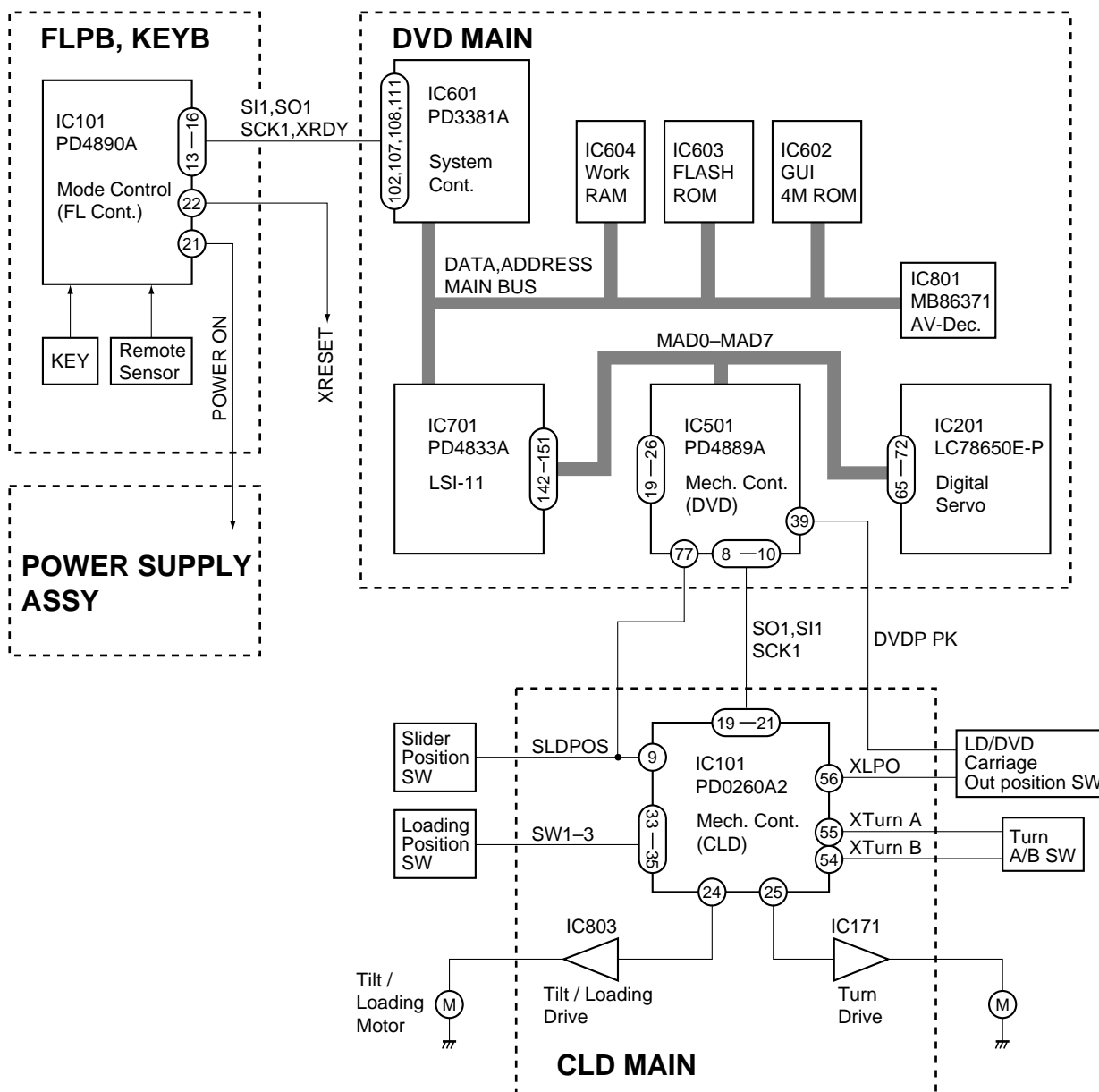
Determination is achieved by checking the sine wave by sweeping the lens with the OE IC gain at L and the FSC error amplifier (SGC) at the default setting. If no sine wave is detected, checking is retried after switching the OE IC gain to H and increasing the gain of the FSC error amplifier (SGC). If no sine wave is detected again, it is regarded as the NO DISC condition.

If one half of the sine wave detected at the first lens sweep is of a value less than 0.5 V, the OE IC gain is set to H and the peak-to-peak value of the sine wave is roughly adjusted to 1.8 Vp-p.

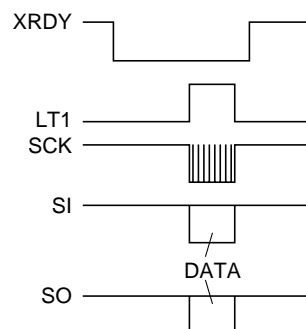
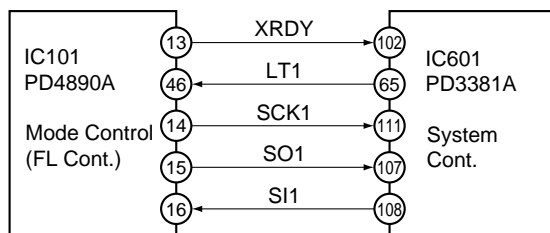
By sweeping the lens around the height where the sine wave has been detected, disc determination is performed, and the sine wave is finely adjusted to 1.8 Vp-p.



## 1.2.6 System Control (DVL-909)



## 1) Interface between Mode Cont. and System Cont.



Timing Chart

If there is no communication for 2 sec.,  
Mode Cont. turn off the power and reset.

## 2. CIRCUIT DESCRIPTIONS FOR DV-S9 AND DV-09

### 2.1 VIDEO SIGNAL PROCESSING BLOCK

#### 2.1.1 PD0259A Block

The major purposes of the PD0259A block are;

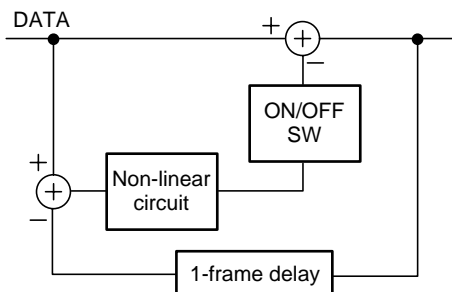
- (1) Frame-correlative cyclic digital noise reduction
- (2) Horizontal and vertical contour compensation
- (3) Y/C timing adjustment
- (4) Frame freezing

##### (1) Frame-Correlative Cyclic Digital Noise Reduction

For eight-bit digital video data input to the PD0259A, noise reduction is performed through subtraction between the data and those of the corresponding points 1 frame before, delayed for the subtraction via a 4-bit DRAM by 1 frame.

The noise signal detected as a result is sent to a non-linear circuit. If the difference is larger than a specific value, it is regarded as “a change in picture,” and no canceling calculation is made.

This function is the same as that which has been performed in conventional laser-disc players. The only difference is that the input video signal here is a DVD digital component signal (4:2:2), while it is an LD digital composite signal in conventional laser-disc players.



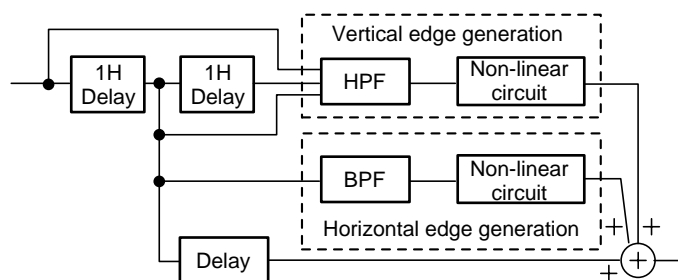
##### (2) Horizontal and Vertical Contour Compensations

For data after digital noise reduction, horizontal and vertical contour compensations are made only for the Y-signal.

Horizontal compensation is performed by detecting edge components from the information of the reference picture elements and those that horizontally proceed and succeed by several pixels, and then generating edge-emphasizing components through non-linear processing of the detected components.

Vertical compensation is performed by detecting edge components from information on the reference picture elements and those which vertically proceed and succeed by one line, and then generating edge-emphasizing components through non-linear processing of the detected components.

These edge-emphasizing components are added to the main-line digital data to achieve contour compensations.



##### (3) Y/C-timing Adjustment

This function changes the output phase of the Y signal with respect to the Cb and Cr signals in units of the 13.5-MHz clock cycle (approx. 74 ns).

##### (4) Frame Freezing

In response to a command sent from the system control computer by serial transmission, data for one frame are frozen, and the frozen picture is output.

This function is specific to the DV-S9 and is used only for picture-by-picture reversing by jog/shuttle operation or “Slow 1” playback operation.

#### 2.1.2 M65677FP Block

The M65677FP block functions as an NTSC encoder that converts digital component signals to analog Y, C, Cb and Cr signals. While our popular models other than the DV-S9 use the built-in encoder in the MB86371 block, an external NTSC encoder is added to the DV-S9, as it performs digital processing in the PD0259A block.

In addition to NTSC encoding, the M65677FP also performs:

- (1) D.EXT(DV-S9)/BLACK LVL(DV-09)
- (2) C.LEVEL adjustment

##### (1) D.EXT(DV-S9)/BLACK LVL(DV-09)

Setup of -7.5 IRE is added to the Y signal. D.EXT(DV-S9)/BLACK LVL(DV-09) processing using analog signals in conventional laser disc players is achieved by using digital signals.

##### (2) C.LEVEL Adjustments

The burst level of the C signal can be varied centering around 40 IRE.

Therefore, it is performed for the S-connector and CVBS-connector outputs, but not for the color-difference output.

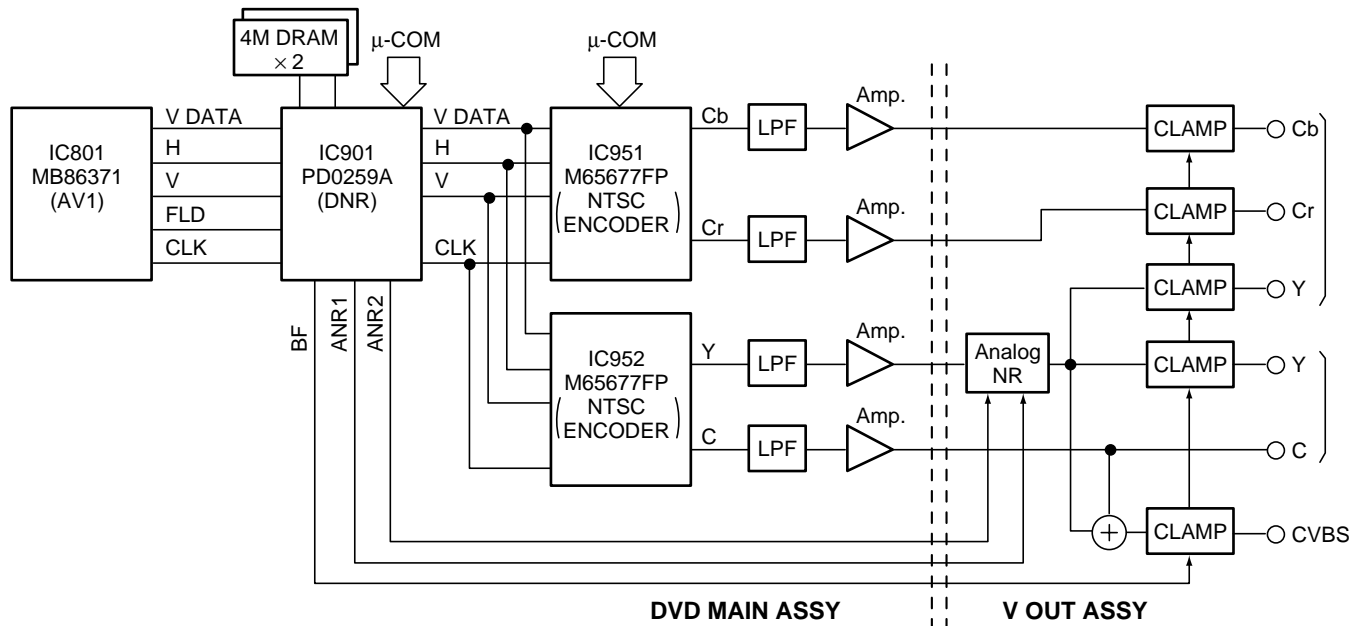
This function is also not available if the connected TV receiver has no AGC circuit.

### 2.1.3 Analog Video Signal Processing Block

The video signals output from the built-in 10-bit DA converter of the M65677FP pass through a low-pass filter and amplifier, and are output from the DVD MAIN Assy and sent to the VOUT Assy.

In the VOUT Assy, analog noise-reduction processing having three levels (OFF, low, and high) is initially applied only to the Y signal. This analog noise reduction is the same as that performed by conventional laser-disc players. The register port output in serial communication that the PD0259A receives from the system-control computer is used as the control signal for analog noise reduction.

After analog noise reduction, a CVBS signal is generated by composing the Y and C signals (no clamping is performed for the C signal). The timing pulse BF to be used for pedestal clamping is supplied from the PD0259A. This signal is adjusted within the PD0259A so that it provides the timing for the burst portions of the output video signals.



## 2.2 DIRB BLOCK (DIRB ASSY) (DV-S9 ONLY)

The two major purposes of the DIRB block are the following:

- (1) Switching between data reproduced from a disc and a data signal in DAC mode
- (2) Data decoding in external input mode (DAC mode)

### (1) Switching Between Data Reproduced from a Disc and a Data Signal in DAC Mode

The signal switching is performed at IC811, sending 3-line data (LRCK, BCK and DATA) to the AUDIO Assy. The switching control line (DAC MODE) is supplied from the DVD MAIN Assy. The master clock (MCK) is generated by a crystal on the AUDIO Assy when reproducing a disc, and by IC861 in DAC mode. MCK is sent to the AUDIO Assy via RXP.

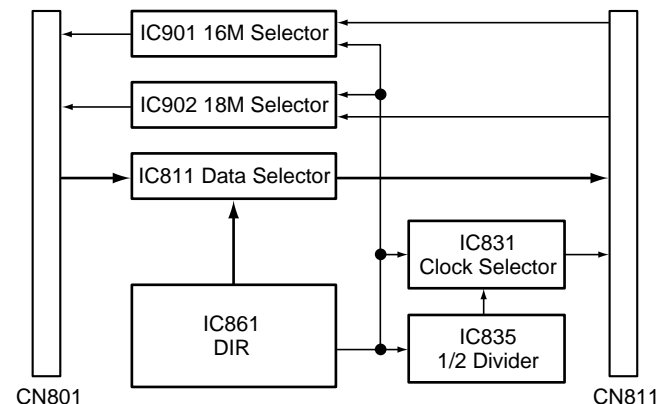
### (2) Data Decoding in External Input Mode (DAC Mode)

When the user selects DAC mode, the DAC MODE port is set to H and VCO in IC861 starts oscillating. (VCO does not oscillate in any other modes than DAC mode.) When there is a loss link of an external input or a coaxial digital input, the digital input signal is sent to IC861 from RXP of CN801, generating 3-line data corresponding to the input sampling frequency. At the same time, the master clock (MCK) to be used in DAC mode is also generated. For a 96kHz input, the MCK frequency is divided by 2 by IC831.

When the user selects the internal clock as the system clock, the clock generated by the crystal on the AUDIO Assy is sent to the DVD MAIN Assy. When the user selects an external sync as the system clock, the following parameters are used.

FS(kHz)	16M clock in the AUDIO Assy	18M clock in the AUDIO Assy	16M clock sent to the DVD MAIN Assy	18M clock sent to the DVD MAIN Assy
32	Oscillates	Oscillates	Crystal 16M clock	Crystal 18M clock
44.1	Stops oscillating	Oscillates	DIR 16M clock	Crystal 18M clock
48	Oscillates	Stops oscillating	Crystal 16M clock	DIR 18M clock
96	Oscillates	Stops oscillating	Crystal 16M clock	DIR 18M clock

If there is no external input or locking onto the input digital signal cannot be achieved, the ERR signal at pin 43 of IC861 is set to H, and the crystal in the AUDIO Assy immediately starts oscillating. In such cases, the clock sent to the DVD MAIN Assy will always be a crystal clock.



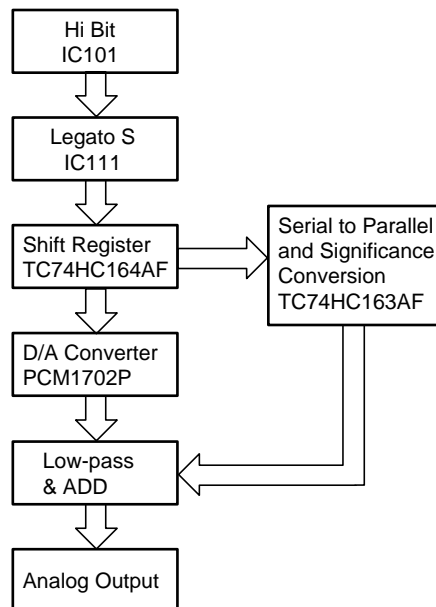
## 2.3 96K, 24-Bit, HIBIT LEGATO S SYSTEM (AUDIO ASSY)

All 16-bit and 20-bit sources are converted to 24-bit data by IC101, which lets a 24-bit data pass through.

As PCM1702P is a 20-bit D/A converter, processing of the upper 20 bits is assigned to it by the shift register.

The lower 4 bits are converted from serial to parallel, then the significance of each bit is converted digital to analog, functioning as a 4-bit D/A converter for the lower 4 bits.

By adding the lower 4 bits to the upper 20 bits in the low-pass & ADD block, D/A conversion is achieved for 24 bits.



## 3. TEST MODE

### 3.1 HOW TO ENTER THE TEST MODE

There are the three following methods to enter the test mode.

1. Short-circuit the terminals (TP6006 and TP6007) for test mode entry at the side of the system control IC (IC601) of DVD ASSY, and turn the power on.
2. Input [ESC] key and [TEST/RANDOM] key of the test mode remote control unit in order under the power on condition.
3. Connect a personal computer with the RS232C terminal (CN106), and input entry command (TE) of test mode from the personal computer.

Note: FL indication and LED come all to light until key operation is done when entering the test mode.

### 3.2 RELEASE THE TEST MODE

There are the three following methods to release the test mode.

1. Turn the power off.
2. Press [ESC] key of the remote control unit. At this time, reset it for a while except for during the LD and CDV set.
3. Connect a personal computer with the RS232C terminal (CN106), and input normal mode entry command (NE) from the personal computer.

### 3.3 THE EXPLANATION OF EACH FUNCTION

The function that can be operated in the test mode is as the following.  
Use a LD remote control unit in the test mode.

#### (1) Door Open/Close

1. Press [REPEAT A-B] (48) key of the remote control unit.
2. Press [OPEN/CLOSE] key of the player from the stop condition.

#### (2) Stop

1. Press [REPEAT] (44) key of the remote control unit.
2. Press [STOP] key of the remote control unit or the player from the stop condition.

#### (3) Play 1 (Demultiplex exist which it tries to output the playback screen)

1. Press [PLAY] (17) key of the remote control unit.
  - CLD rise up at the tracking open condition. However, it becomes tracking close when entering the test mode during the play.
  - DVD rise up at the tracking close. Playback screen may not appear because the NAVI information isn't read in the test mode.

#### (4) Play 2 (Demultiplex is absent which performing trace only)

1. Press [TV/LDP] (0F) key of the remote control unit.
  - It is equal to the play 1 with CLD.
  - Perform only tracing with DVD, and there are no video and audio output.

#### (5) Pause

1. It becomes pause condition by pressing [CX] (0E) key of the remote control unit in the play.
2. Pause ON/OFF changes alternately by pressing [PAUSE] (18) key in the play.

#### (6) Search Address Input Entry

It becomes the address input mode when [+10] key (1F) is pressed. (indication for the most significant digit : > )

Indicate the last address as the initial condition in this time.

Only in case of DVD, addition search (indication for the most significant digit : + ) and subtraction search (indication for the most significant digit : - ) are able to select in order by pressing [+10] key continuously.

The address where input value was added to the present address is made to search with addition search.

The address where input value was subtracted to the present address is made to search with subtraction search.

In case of CD is only absolute time search.

Also address clear and release from the address input mode are able to perform by 2 steps by pressing [CLEAR] (45) key.

#### (7) Search Address Input

Press [0] to [9] keys of the remote control unit.

Set up the address by the hexadecimal number with DVD.

When [PROGRAM] (4C) key is pressed in the address input mode, input mode changes to hexadecimal number input (Indicates "\*" mark), and [1] to [6] keys are input as [A] to [F].

At this time, [7], [8], [9] and [0] keys are not accepted.

Also the hexadecimal number input and the decimal number input can be changed with toggle.

#### (8) Search Practice

1. Press [CHP/TIM] (13) key of the remote control unit.
 

Practice the on screen no playback (Doesn't demultiplex) after the search with DVD.
2. Press [PLAY] (17) key of the remote control unit.
 

Practice the on screen playback (demultiplex exists) after the search with DVD.

#### (9) Side Change

This function becomes effective when a set disk is LD.

1. Change a side on the side A from the side B when pressing [SIDE A] (4D) key of the remote control unit.
2. Change a side on the side B from the side A when pressing [SIDE B] (4E) key of the remote control unit

#### (10) Tracking Open

1. Press [STEP FWD] (54) key of the remote control unit in the play condition.
2. Switch the open/close by pressing [PLAY] key of the remote control unit or the player during the play (CD only).

## (11) Tracking Close

1. Press [STEP RVS] (50) key of the remote control unit in the play condition.
2. Switch the open/close by pressing [PLAY] key of the remote control unit or the player during the play (CD only).

## (12) Slider In

1. Press [SCAN RVS] (11) key of the remote control unit in the tracking off condition.
2. Turn the shuttle of the remote control unit in the REV direction (2C to 2F) in the tracking off condition. (DVD only)

## (13) Slider Out

1. Press [SCAN FWD] (10) key of the remote control unit in the tracking off condition.
2. Turn the shuttle of the remote control unit in the FWD direction (28 to 2A) in the tracking off condition. (DVD only)

## (14) Scan In

1. Press [SCAN RVS] (11) key of the remote control unit in the tracking on condition.
2. Turn the shuttle of the remote control unit in the REV direction (2C to 2F) in the tracking on condition.
  - DVD can be scanned only in the case of the play 2 (playback without demultiplex).

## (15) Scan Out

1. Press [SCAN FWD] (10) key of the remote control unit in the tracking on condition.
2. Turn the shuttle of the remote control unit in the FWD direction (28 to 2A) in the tracking on condition.
  - DVD can be scanned only in the case of the play 2 (playback without demultiplex).

## (16) Loading In/Out

When pressing [SKIP REV] (53) key of the remote control unit in the open condition, it loads in the clamp direction. Then it loads in the open direction when pressing [SKIP FWD] (52) key.

- This function can practice only when it is indicated with "OPEN" in FL.

## (17) Tilt Neutral

Press [SPEED DOWN] (46) key of the remote control unit.

## (18) Tilt Servo On/Off

- a. On  
Press [SPEED UP] (47) key of the remote control unit.
- b. Off  
Press [SKIP REV] (53) key and [SKIP FWD] (52) key of the remote control unit at the tilt servo on or the tilt neutral.

## (19) Tilt Down

A manual moves in the going down direction when [SKIP REV] (53) key of the remote control unit is pressed during the play at the time of tilt off.

## (20) Tilt Up

A manual moves in the going up direction when [SKIP FWD] (52) key of the remote control unit is pressed during the play at the time of tilt off.

## (21) Focus Jump +

Focus jumps in 1 layer from 0 layer when [MULTI FWD] (58) key of the remote control unit is pressed. (DVD only)

## (22) Focus Jump –

Focus jumps in 0 layer from 1 layer when [MULTI REV] (55) key of the remote control unit is pressed. (DVD only)

## (23) The First And The Second Screen Switching

Every time [DISPLAY] (43) key of the remote control unit is pressed, the contents of the version indication part (the bottom right of the screen) change. (Refer to page 17.)

## (24) Screen Display On

1. Press [DISPLAY] (43) key of the remote control unit.
2. Display on/off switches every time [PROGRAM] (4C) key of the remote control unit is pressed.
  - When [DISPLAY] key is pressed in the display on, change the part number indication of the microprocessor and revision indication.
  - Initial state is screen display on and it becomes the part number indication of the microprocessor.

## (25) Screen Display Off

1. Press [AUDIO] (1E) key of the remote control unit.
2. Display on/off switches every time [PROGRAM] (4C) key of the remote control unit is pressed.

## (26) Background Color Switching

1. Change the background color (eight colors) prepared for in advance every time [2/R] (49) key of the remote control unit is pressed in order.  
[Blue→Green→Light blue→Red→Purple→Yellow→Gray→Black→Blue ....]
2. Change the background color (eight colors) prepared for in advance every time [1/L] (4B) key of the remote control unit is pressed in order.  
[Blue→Black→Gray→Yellow→Purple→Red→Light blue→Green→Blue ....]

## (27) Video Output Switching

1. It becomes component output when pressing [DIGITAL EFFECT] (5C) key of the remote control unit.
2. It becomes composite output when pressing [STILL WITH SOUND] (5B) key of the remote control unit.



### 3.4 EXPANSION FUNCTION 1

Set the reception mode of expansion function by pressing [TEST] (5E) key of the test mode remote control unit, then expansion function is able to execute by pressing the key of [0] to [9].

Indication for the most significant digit becomes "T" during the reception mode of expansion function. (This mode can on and off with toggle.)

#### (1) LD On

Turn the laser diode to on by pressing [TEST] and [1] keys in order.

#### (2) Focus On

Focus locks by pressing [TEST] and [2] keys in order.

#### (3) Focus Sweep

Repeat focus sweep by pressing [TEST] and [3] keys in order.

#### (4) Spindle FG Servo

Rising up the spindle and FG servo becomes on by pressing [TEST] and [5] keys in order.

#### (5) AGC On/Off

Switch the AGC on and off with toggle by pressing [TEST] and [7] keys in order.

#### (6) Jitter Value Indication.

It becomes the jitter-value indication mode by pressing [TEST] and [DIG/ANA] keys in order.

#### (7) DSP coefficient indication of FTS system.

Set up the address (four digits) of the coefficient that it wants to see by the point of search address input, then real time indicates the coefficient in OSD by pressing [TEST] and [9] keys in order.

#### (8) CD Error Rate Indication

Indicate the value in OSD after measuring is completed by pressing [TEST] and [0] keys in order after set up the measuring time (1 to 8 seconds) by the point of search address input.

### 3.5 EXPANSION FUNCTION 2

Set the reception mode of expansion function 2 by pressing [HILITE/INTRO] (55) key of the remote control unit, then expansion function 2 is able to execute by pressing the key of [0] to [9].

#### (1) Forced DVD Setting

In the checker mode, set up the condition that DVD is attached forcibly except for the result of disc distinction by pressing [HILITE/INTRO] and [1] keys in order.

In the no checker mode (normal test mode), once execute the setting but abandon it soon.

Therefore, perform the disc distinction again for the safety when rising up the player in this condition.

#### (2) Forced CD Setting

In the checker mode, set up the condition that CD is attached forcibly except for the result of disc distinction by pressing [HILITE/INTRO] and [3] keys in order.

In the no checker mode (normal test mode), once execute the setting but abandon it soon.

Therefore, perform the disc distinction again for the safety when rising up the player in this condition.

#### (3) Execute The Disk Distinction

In the checker mode, execute the disc distinction result by pressing [HILITE/INTRO] and [0] keys in order.

### 3.6 List of Test Mode Function

Contents of Command	Condition	Key Name of Remote Control Unit	Mode of Remote Control Unit
Open	STOP	REPEAT A	A8-48
Close	OPEN	REPEAT A	A8-48
Stop	PLAY	REPEAT B	A8-44
Play (DVD is only tracing.)	STOP	TV/LDP	A8-0F
Play (DVD is with decode.)	STOP	PLAY	A8-17
Pause on	PLAY	CX	A8-0E
Pause on/off	PLAY/PAUSE	PAUSE	A8-18
Search address input (0 to 9) *Use for other numerical value input		0 to 9	A8-00 to 09



Contents of Command	Condition	Key Name of Remote Control Unit	Mode of Remote Control Unit
Search address input (A to F)	During address input	PGM+1 to 6	
① Search address clear	During address input	CLEAR	A8-45
② Escape the search input mode	Address = 0		
Change the search address input mode (Off→absolute address→addition→subtraction→Off) *Use for other numerical value input.		+10	A8-1F
Search execution (ignore the wrong address)		CHAP/TIME	A8-13
Side change (side B→side A)	LD	SIDE A	A8-4D
Side change (side A→side B)	LD	SIDE B	A8-4E
Tracking open	PLAY	STEP FWD	A8-54
Tracking close	PLAY	STEP REV	A8-50
Slider in	TR : Off	SCAN REV Shuttle REV	A8-11 A8-2C to 2F
Low speed scan REV	TR : On	SCAN REV	A8-11
Scan REV (Jump number is variable)	TR : On	Shuttle REV	A8-2C to 2F
Slider out	TR : Off	SCAN FWD Shuttle FWD	A8-10 A8-28 to 2B
Low speed scan FWD	TR : On	SCAN FWD	A8-10
Scan FWD (Jump number is variable)	TR : On	Shuttle FWD	A8-28 to 2B
Loading in	STOP	SKIP REV	A8-53
Loading out	STOP	SKIP FWD	A8-52
Tilt neutral		SPEED DOWN	A8-46
Tilt servo on		SPEED UP	A8-47
Tilt servo off	Tilt : On/N	SKIP REV SKIP FWD	A8-53 A8-52
Tilt up	PLAY	SKIP FWD	A8-52
Tilt down	PLAY	SKIP REV	A8-53
LD on		TEST + 1	A8-5E + A8-01
Focus on		TEST + 2	A8-5E + A8-02
Focus sweep		TEST + 3	A8-5E + A8-03
Focus jump +		MULTI FWD	A8-58
Focus jump -		MULTI REV	A8-55
Spindle FG on		TEST + 5	A8-5E + A8-05
AGC on/off	AGC : Off/On	TEST + 7	A8-5E + A8-07
Indication of the FTS coefficient	After the address four-digit input	TEST + 9	A8-5E + A8-09
CD error rate indication	PLAY	TEST + 0	A8-5E + A8-00
Jitter indication		TEST + DIG/ANA	A8-5E + A8-0C
Screen indication on/Switching of the first screen and second screen	OSD Off/On	DISPLAY	A8-43
Screen indication off	OSD : On	AUDIO	A8-1E
Screen indication on/off		PROGRAM	A8-4C
Switching of ID display methods (decimal/hexadecimal)		DIG/ANA	A8-0C
DISC type designation	STOP	HILITE/INTRO	A8-5A
• Forced designation to DVD		+1	+A8-01
• Forced designation to CD		+3	+A8-03
• Request for Disk sensing		+0	+A8-00
Tray close of disk sense inhibition	Checker mode	REPEAT A	A8-48
Background color (eight colors) switching		2/R	A8-49
Background color (eight colors) switching (reverse toggle)		1/L	A8-4B
Video : component output		DIGITAL EFFECT	A8-5C
Video : composite output		STILL WITH SOUND	A8-5B

## ● Special Mention Item

(1) Indications for the spindle status are as follows:

- A/B : Spindle accelerator and brake
- FG : FG servo
- SRV : Rough, velocity/phase servo
- O\_S : Offset addition, rough, velocity/phase servo

(2) The movement of loading in/out starts from the tray open status.  
After that, this function is executed unless a play and close operation are done.

(3) There are three methods for entering a search address:

- ① Absolute address designation  
→ Searching for the address entered (indication for the most significant digit :>)
  - ② Additional input  
→ Searching for the address with the current ID number plus an entered number  
(indication for the most significant digit :+)
  - ③ Subtractive input  
→ Searching for the address with the current ID number minus an entered number(indication for the most significant digit :−)
- The above modes can be changed by pressing [10] key.

Note : A number for addition or subtraction must be entered in hexadecimal.

(4) If you turn the power on while short-circuiting the short-circuit terminal at the side of the system controller, the player will forcibly enter the test mode. If the FL controller is set to Checker mode, disc sensing will not be started, even if a disc is loaded. Disc sensing will also not be performed if the tray is opened/closed by your pressing [REPEAT A] key while in Checker mode.

However, disc sensing will be started if the [OPEN/CLOSE] key on the player or on the remote control unit is pressed.

(5) If disc-type designation is forcibly executed during a mode other than Checker mode, the system controller will abandon disc-type designation after setting the mechanism controller. Therefore, after startup of the player, disc sensing will be performed again for safety.

If disc-type designation is forcibly executed during Checker mode, as disc-type designation is not abandoned, playback will be immediately started.

(6) A background color change in order of blue → green → light blue → red → purple → yellow → gray → black → with the [2/R] key.

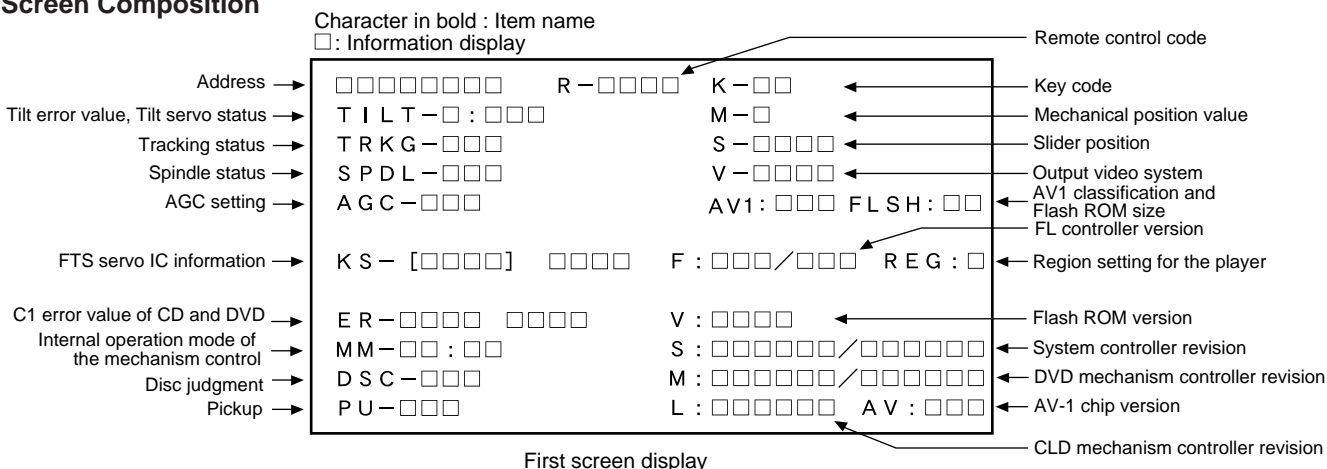
It changes in order of gray → yellow → purple → red → light blue → green → blue → black → in the case of the [1/L] key.

(7) In case of PD0260A\*, tilt servo on function may not move with DVD.

## 3.7 Test Mode Screen Display (The Second Generation)

Consecutive double-OSD display is supported during test mode. The screen is composed 10 lines with a maximum of 32 characters per line. It can't be used with the debugging display mode together.

### • Screen Composition

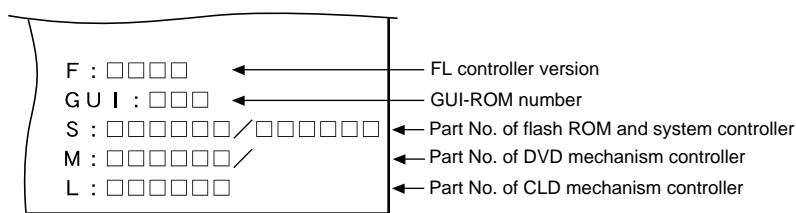


#### Caution :

The first screen and second screen switch by pressing [DISPLAY] key of the remote control unit.

It is only a version display part on the lower right of the screen those contents of display change.

ATB : ON/OFF information display and AGC manual establishment display deleted with the second generation.



Second screen display (at lower right portion of the screen)

## • Description of Each Item on the Display

### (1) Address indication

The address being traced is displayed in number.

DVD : ID indication (hexadecimal number, 8 digits) [\*\*\*\*\*]  
 CD/LD (CLV) : A-TIME (min. sec.) [○○○○\*\*\*\*]  
 LD (CAV) : FRAME [○○○\*\*\*\*\*]  
 (Note : For DVDs, decimal-number indication is possible.)

### (2) Code indication of the remote control unit [R-\*\*\*\*]

The code for the key pressed on the remote control unit, which is received by the FL controller, is displayed while the key is pressed.  
 In the case of the double code, the second code will be displayed.

### (3) Key code indication for the main unit [K-\*\*]

The code for the key pressed on the main unit, which is received by the system controller, is displayed while the key is pressed.

### (4) Tilt error value, Tilt servo status [TILT-\*:\*\*\*]

Tilt error value : [0] to [F]  
 Tilt servo status :  
     Tilt neutral [N]  
     Tilt servo on [ON]  
     Tilt servo off [OFF]

### (5) Tracking status [TRKG-\*\*\*]

Tracking on [ON]  
 Tracking off [OFF]

### (6) Spindle status [SPDL-\*\*\*]

Spindle accelerator and brake [A/B]  
 FG servo [FG]  
 Rough, velocity phase servo [SRV]  
 Offset addition, rough, velocity phase servo [O\_S]

### (7) Mechanism position value [M-\*]

Position code [0] to [8]

### (8) Slider position [S-\*\*\*\*]

CD TOC area [IN ]  
 CD active area [CD ]  
 CDV video area [CDV ]  
 LD active area [LD ]  
 Side B inside [B IN]

### (9) AGC setting [AGC-\*\*]

AGC on [ON]  
 AGC off [OFF]

### (10) Output video system [V-\*\*\*\*]

NTSC system [NTSC]  
 PAL system [PAL ]  
 Auto-setting [AUTO]

### (11) FTS servo IC information

Indications for the following two types of information can be switched:

- ① DSP coefficient indication [KS-[\*\*\*\*] \*\*\*\*]  
 Displays the address (four digits) of the specified coefficient and the setting value (four digits) with [TEST] and [9] keys.
- ② Jitter value indication [JT-[○○○○]\*\*\*\*]  
 Displays the jitter value (four digits) with [TEST] and [DIG/ANA] keys.

### (12) Error rate indication

- ① C1 error value of CD [ER-C1 \*\*\*\* ]
- ② C1 error value of DVD [ER-\*\*\*\* \*\*\*\*]

### (13) Internal operation mode of mechanism controller [MM-\*\*\*]

Internal mechanism mode (2 digits) and internal mechanism step (2 digits) of the mechanism controller  
 Note : For details, see the specifications of the mechanism controller.

### (14) Disk sensing [DSC-\*\*\*]

The type of discs loaded is displayed.  
 [DVD], [CD ], [CDV], [LD ], [VCD], [ ]

### (15) Pickup [PU-\*\*\*]

The pickup being operating is displayed.  
 DVD [DVD]  
 CLD [CLD]

### (16) Destination setting of the FL controller [F:\*\*\*/\*]

Three characters in front represent the type of model:  
 505: DV-505, S9: DV-S9  
 606 : DV-606D, EDU: for education  
 909: DVL-909, K88: DVL-K88.

Three characters that follow represent the destination code.  
 J : /J, K: /KU, /KC, /KU/KC, RAM: /RAM (China)  
 RL : /RL, WY: /WY, RD: /RD.

\* Furthermore DVL-91/KU/CA indicates as L91/K.

### (17) Region setting of the player [REG:~]

Setting value [1] to [6]

### (18) Version of the flash ROM [V:~.~]

### (19) Revision of the system controller [S:~.~/\*~.~]

- ① Revision number of the external ROM part (flash ROM) of the system controller <Front>
- ② Revision of the internal ROM part of the system controller <Rear>

**(20) Revision of the DVD mechanism controller****[M:\*.\*\*\*/\*.\*\*\*]**

- ① Revision number of the external ROM part (flash ROM) of the DVD mechanism controller <Front>
- ② Revision of the internal ROM (core part) of the DVD mechanism controller <Rear>

**(21) Revision of the CLD mechanism controller****[L:\*.\*\*\*]****(22) Version of the AV-1 chip [AV:\*.]\*]****(23) Version of the FL controller [F:\*.]\*]****(24) Control number of the GUI-ROM [GUI:\*\*\*]****(25) The part number of the flash ROM and system controller [S : \*\*\*\*\*/\*\*\*\*\*]**

- ① Part number of the flash ROM <Front>  
(Example) VYW1536-A → W1536A  
(Example) PD626A9 → 6256A9
- ② Part number of the system controller <Rear>  
(Example) PD3381T1 → 3381T1

**(26) Part number of the DVD mechanism controller**

(Example) PD4889A0 → 4889A0

**(27) Part number of the CLD mechanism controller**

(Example) PD0260A2 → 0260A2

**(28) AV1 classification [AV1 : \*\*\*]**

RAM, E/A, S/C

**(29) Flash ROM size [FLSH : \*\*]**

8M : 8M bit, 4M : 4M bit

**3.8 DESCRIPTIONS OF NEW FUNCTIONS IN TEST MODE****3.8.1 Error Rate****● Overview**

The error rate of CDs can be measured on basic models, such as the DV-505, and that of CDs as well as LDs with sub-Q codes can be measured on DVD/LD-compatible models, such as the DVL-909. The value is displayed in decimal and indicates the number of C1 errors (including the corrected ones) counted during the specified measurement time.

An indeterminate measurement result may be caused by a dirty disc, decentering, surface deflection, birefringence (double reflection), or a pickup problem (dirty lens, etc.), misadjustments of the pickup, improper automatic adjustment, or incomplete adjustments. On the manufacturing line, the value is used for yes/no decision of pickups. Normally, for a measurement for 5 seconds, the value may be less than 10 with a clean disc and less than 100 with a disc with some damage.

**● Using the Function in Test Mode (The Remote Control Keys to be Used are Indicated in Brackets)**

- (1) Set the CD to trace (playback) state.
- (2) Set the player to Number input mode by pressing [+10] and enter the measurement time in a range of 1 to 5 (sec.).
- (3) Start measurement by pressing [TEST] + [0]. The SubQ counter stops during measurement, but this is not a malfunction. When the specified measurement time has elapsed, the result is indicated to the right of "ER C1 -" on the screen. If you skip step 2, the measurement time is set to 5 (sec).

**3.8.2 Jitter Value****● Overview**

The jitter values of DVDs and CDs can be displayed on basic models, such as the DV-505, and those of DVDs can be displayed on DVD/LD-compatible models, such as the DVL-909.

The displayed value shows a voltage in three-digit decimal as ○.○○ V. For example, the indication "0278" means 2.78 V. The larger the value, the worse the jitter. The worst value is 3.25 V. When playing a DVD or a video CD with which the jitter value is extremely high, mosaics may be seen. As with the error rate, the jitter depends on the disc and pickup. The jitter value to be displayed has no close correlation with a jitter measuring device, and is to be regarded just for reference.

Reference : When the jitter value is 2.9 V or more with a DVD, or 3.0 V or more with a CD (or a video CD), it may cause a problem (mosaic, audio distortion, etc.) in playback.

**● Using the Function in Test Mode (The Remote Control Keys to be Used are Indicated in Brackets)**

- (1) Set the DVD or CD to trace (playback) state with AGC OFF.
- (2) Press [TEST] and [DIGITAL/ANALOG].  
The current jitter value appears to the right of "JT:○○○○" on the display. The jitter value keeps changing unless any additional key operation is made.

Note : Although a value may be displayed on the screen even with AGC ON, this is NOT a jitter value.

The jitter value with AFB ON cannot be displayed (see the next section). The jitter value with AFB ON can be obtained only by directly measuring the voltage at the JV connector (pin 94) of the servo DSP (LC78650).

## 3.8.3 Startup Sequence

The basic flow is shown below. The parentheses indicate a limitation: “base” represents base models, such as the DV-505 and DV-S9, and “compatibles” represents DVD-LD compatible models, such as the DVL-909.

- (1) Closes the tray.
- (2) Runs the tilt servo for 1.5 seconds (compatibles).
- (3) Detects the peak.
- (4) Distinguishes the disc.
- (5) SGC
- (6) Turns on the focus servo.
- (7) Turns on the tilt servo (compatibles).
- (8) Starts the spindle rotation.
- (9) ATB
- (10) Measures the MIRR modulation degree.
- (11) Turns on the tracking servo.
- (12) Turns on the slider servo.
- (13) Turns on the spindle servo.
- (14) Focus AGC
- (15) Tracking AGC
- (16) AFB
- (17) Plays AGC (base for CDs)
- (18) Plays back.

\* For a 2-layer DVD, steps (9) through (16) are repeated for each layer.

\* When starting up with [TV/LDP] in Test mode, all the steps (1) to (18) are performed for a DVD, and steps (1) to (10) are performed for a CD.

## 3.8.4 Peak Detection

### ● Overview

This is a new function to measure the size and location of the sine wave related to focus errors at the beginning. The measurement is performed in the normal startup process and in Test mode, as well. If the sine wave is small, the OE IC gain is switched. Only the judgment for NO DISC is accomplished at this time. The operation is in effect as for judgment for DISC.

### ● Using the Function in Test Mode

This function is not assigned to any remote control keys. Only an open/close operation can trigger the function.

## 3.8.5 Disc Distinction

### ● Overview

This function is almost the same as that with the first-generation models. The only difference is as follows: If an error occurs in the startup sequence and playback cannot be started, startup is retried after forcibly switching the disc distinction from DVD to CD or vice versa by a backup process. If startup fails again, it is canceled, and an error is generated. The types of error that triggers the backup process for disc distinction are discussed in the next section.

### ● Using the Function in Test Mode

This function is not assigned to any remote control keys. Only an open/close operation can trigger the function.

## 3.8.6 SGC

### ● Overview

This is a new function to maintain the sine wave related to focus errors to a certain size so that the sine wave shows 1.8 V for the P-to-P value.

This operation is performed each time after judging disc presence and distinction in the normal startup process and in Test mode, as well. The operation is achieved by switching the FE gain inside the RF IC (LA9700) by using the voltage at the SGC connector (pin 22) of the RF IC.

### ● Using the Function in Test Mode

This function is not assigned to any remote control keys. Only an open/close operation can trigger the function.

## 3.8.7 Measurement of MIRR Modulation Degree

### ● Overview

The slice voltage of the RF signal is measured and used in the calculation to generate the MIRR signal. This operation is made in synchronization with ATB ON/OFF in normal startup and in Test mode, as well.

## 3.8.8 AFB (Auto Focus Bias) Function

### ● Overview

Among the first-generation models, this function supports only CDs with the basic models, such as the DV-7. Among the new models, this function supports DVDs with all models, but CDs only with the basic models. The operation is executed only once (once for each layer for a 2-layer DVD) after the focus and tracking AGC at startup. The operation is accomplished not by centering the focus servo to Vref (2.5 V), but by gradually changing the center value for the optimum jitter value. Thus, performance with an improper or dirty disc (by fingerprints, etc.), or the temperature characteristics (at 0°C, 35°C, etc.) will be improved.

### ● Overview Using the Function in Test mode (the Remote Control Keys to be Used are Indicated in Brackets)

As the function is to be synchronized with AGC, turn on and off AFB by pressing [TEST] + [7]. The jitter value measurement cannot be made with AFB ON.

### 3.8.9 PLAY AGC

#### ● Overview

The SGC voltage is adjusted during playback according to the RF signal level. (For details on SGC, see section 3.8.6.)

Only for CDs in basic models, such as the DV-505 (including the DV-S9), this adjustment is made only once immediately after AFB during startup. In Test mode, it synchronizes with AGC ON/OFF. The operation is achieved through adjustment in the Servo DSP (LC78650), and the SGC voltage is output via AUX0 (pin 44).

#### ● Using the Function in Test Mode (the Remote Control Keys to be Used are Indicated in Brackets)

As the function is to be synchronized with AGC, turn on and off AFB by pressing [TEST] + [7].

## 3.9 Additional Descriptions of Error Generation

This section describes the major errors of the mechanism-control computer.

### (1) DISC Distinction Error (Error 38)

The most common error. The tracking overcurrent error (Error c3), Defocus error (Error 33), spindle errors (Errors 41 to 4b), auto sequence errors (Errors 51 to 55) and code misread errors (71 to 74) often lead to this error.

### (2) Search Errors (Errors 11, 12, 19)

Almost all cases where playback suddenly stops may involve these errors. They may be generated because of defects on the disc, or if the pickup goes too far over the inner periphery with DVD/LD-compatible models. As with the code misread errors below, they can also be generated by a dirty disc or bad jitters.

### (3) Code Misread Errors (Errors 71 to 74)

Almost all cases where the inserted disc does not start or immediately stops playing may involve these errors. They may be generated because of a dirty disc or bad jitters. A bad jitter may be caused by a dirty disc, decentering, surface deflection, birefringence (double reflection), or a pickup problem (dirty lens, etc.), misadjustments of the pickup, improper automatic adjustment, or incomplete adjustments.

### (4) Spindle Errors (Errors 48, 49)

An FG transition timeout (Error 48) may be generated because of instability of the FG signal or unavailability of spindle drive voltage. A PLL transition timeout (Error 49) can be generated with a dirty disc.

### (5) Automatic Sequence Errors (Errors 51 to 55)

If any automatic sequence (auto execution command) of the servo DSP is not completed, these errors are generated. The causes differ among error numbers. They may be caused by abnormalities in the communication line between the mechanism-control computer (PD4889A) and the servo DSP or instability of the XABUSY connector (pin 38) of the mechanism-control computer.

### (6) DSP Communication Errors (Errors a1 to a6)

These errors will be generated if the mechanism-control computer cannot properly communicate with the servo DSP. They may be caused by instability of the XCBUSY connector (pin 8) of the mechanism-control computer, instability of the communication line between the mechanism-control computer and the servo DSP, or a defect in the servo DSP.

### (7) DVD Block Noise, etc.

Block noise and momentary picture freeze (\*) with a DVD are not regarded as errors, but the causes of these symptoms in the Servo system may be:

- (1) A search takes a long time (leading to a search error if it worsens).
- (2) Codes cannot be read clearly (leading to a code misread error if it worsens).

If the value to the right in the “ER: ○:○e-” indication displayed on the screen by pressing the ESC and DISP keys of the remote control in Test mode is greater than 5, the cause may be (1). If the value is less than 3, the cause may be (2).

- (\*) With a specific 2-layer disc with which playback continues from layer 1 to 2 or vice versa, the picture may be seen momentarily stop. This may be attributed to the performance of the player. Players of other manufacturers have the same symptoms to varying degrees.



## 4. IC INFORMATION

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

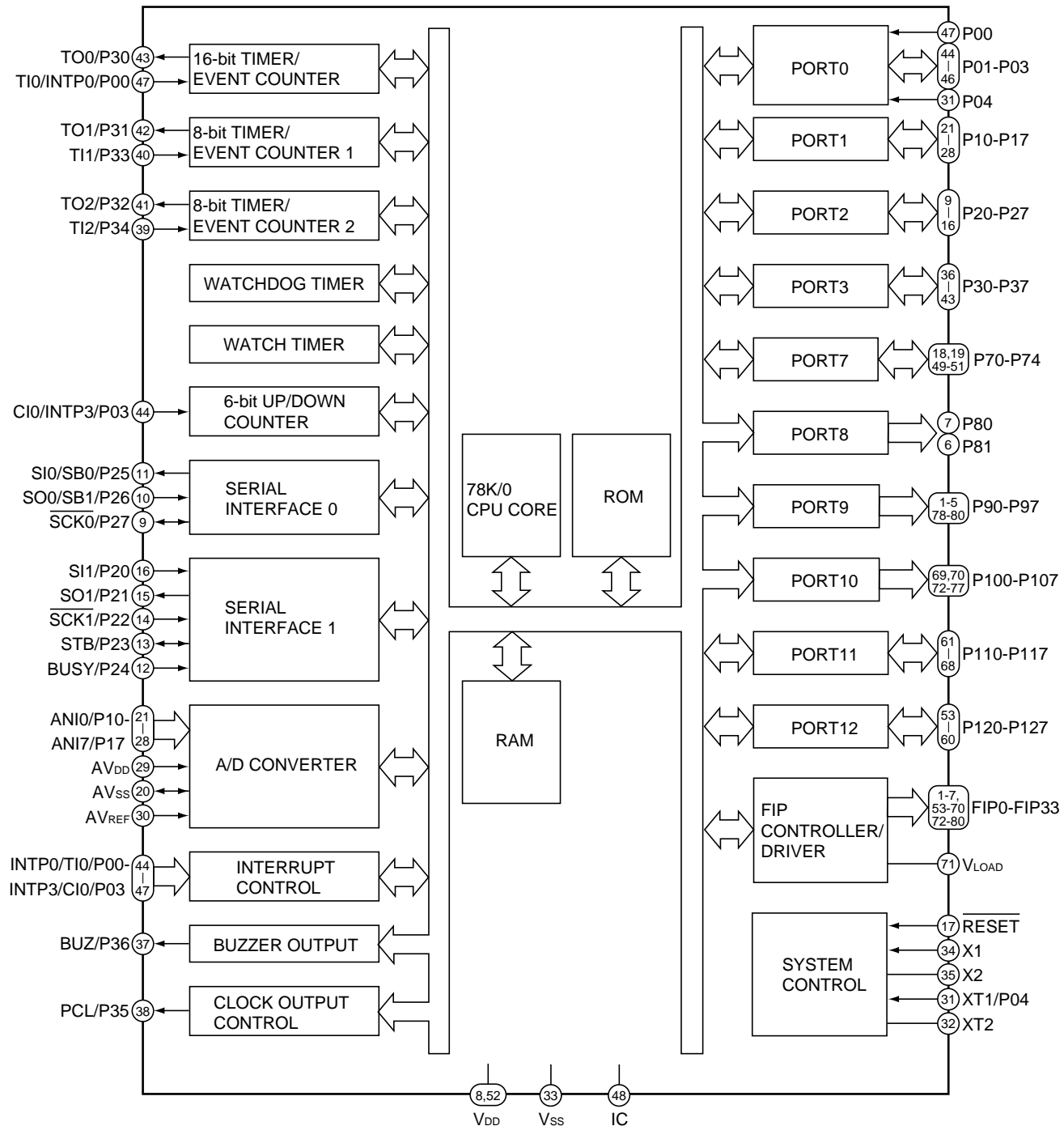
### • List of IC

PD4890A, PD0260A2, PD0261A2, LA9700M, BA6195FP, LC78650E-P, PD4889A, SRM2B256SLMX70, VYW1536, PD3381A, MB86371, MB811171622A-100FN, CY2081SL-611, PD2058A

### ■ PD4890A (FLKB ASSY : IC101)

#### • Mode Control IC

#### • Block Diagram



## ● Pin Function

No.	Mark	Pin Name	I/O	Function
1	P94	G7	O	FL timing output    H : ON
2	P93	G6		
3	P92	G5		
4	P91	G4		
5	P90	G3		
6	P81	G2		
7	P80	G1		
8	VDD	VCC	–	Power supply pin
9	P27	(NC)	O	Not used
10	P26	(NC)		
11	P25	(NC)		
12	P24	LAMP	O	DVD lamp ON/OFF    H : ON
13	P23	XREADY	O	Communication handshake line with the system controller L : Permit the communication
14	P22	SCK	I/O	Communication clock output with the system controller
15	P21	SO	I/O	Communication data output with the system controller
16	P20	SI	I	Communication data input with the system controller
17	RESET	RESET IN	I	Reset input    L : reset
18	P74	(NC) (DV-505)	O	Not used
		SIDE A LED (DVL-909)	O	SIDE A LED ON/OFF    L : ON
19	P73	(NC) (DV-505)	O	Not used
		SIDE B LED (DVL-909)	O	SIDE B LED ON/OFF    L : ON
20	AVss	Vss	–	GND pin
21	P17	POWER ON	O	SW 5V ON/OFF    H : ON
22	P16	RESET OUT	O	System reset output    L : reset
23	P15	(NC)	O	Not used
24	P14	(NC)		
25	P13	KIN1	I	Key input
26	P12	KIN0		
27	P11	MS1	I	Destination judgement input
28	P10	MS0		
29	AVDD	AVDD	–	Power supply pin
30	AVREF	AVREF	–	Reference voltage
31	P04	P04	I	Not used
32	XT2	(NC)	–	Not used
33	VSS	VSS	–	GND pin
34	X1	X1	I	Connect a microprocessor clock
35	X2	X2	–	
36	P37	(NC)	O	Not used
37	P36	(NC)		
38	P35	(NC)		
39	P34	P34	I	Not used
40	P33	P33		



# DV-505, DVL-909, DV-S9

No.	Mark	Pin Name	I/O	Function
41	P32	P32	I	Not used
42	P31	P31		
43	P30	(NC)	I	Not used
44	P03	P03	I	Not used
45	P02	ON POWER	I	Switch the STBY/POWER ON at rising edge the FL controller L : STBY
46	P01	LT	I	Communication handshake line with the system controller H : Permit the communication
47	P00	SEL IR	I	Remote control signal input
48	IC	IC	–	–
49	P72	(NC)	O	Not used
50	P71	FL OFF LED (DV-505)	O	FL OFF LED ON/OFF L : ON
		(NC) (DVL-909)	O	Not used
51	P70	(NC)	O	Not used
52	VDD	VDD	–	Power supply pin
53	P127	(NC) (DV-505)	O	Not used
		FL OFF LED (DVL-909)	O	FL OFF LED ON/OFF H : ON
54	P126	(NC)	O	Not used
55	P125	(NC)		
56	P124	(NC)		
57	P123	(NC)		
58	P122	(NC)		
59	P121	(NC)		
60	P120	(NC)		
61	P117	P15	O	FL segment output H : ON
62	P116	P14		
63	P115	P13		
64	P114	P12		
65	P113	P11		
66	P112	P10		
67	P111	P9		
68	P110	P8		
69	P107	P7		
70	P106	P6		
71	VLOAD	-27V	–	– 27V input H : ON
72	P105	P5	O	FL segment output H : ON
73	P104	P4		
74	P103	P3		
75	P102	P2		
76	P101	P1		
77	P100	G11	O	FL timing output H : ON
78	P97	G10		
79	P96	G9		
80	P95	G8		

# **PD0260A2, PD0261A2 (CLDM ASSY : IC101)(DVL-909 ONLY)**

## **• Mechanism Control IC**

## **• Pin Function**

No.	Pin Name	I/O	Function
1	VCC	I	Power supply pin Apply 5V $\pm$ 10%
2	RWC	O	DSP read/write command signal output "L"= Read "H"= Write
3	XPLAY	O	Signal output during spindle servo "L"= During servo "H"= During acceleration, brake and stop
4	CLK:SCK3/CQCK	O	DVP/DSP clock switch "H"= DVP "L"= DSP
5	XCD	O	LD/CD switch signal output "L"= CD "H"= LD
6	TILT ERR	I	A/D • This signal is A/D converted as the tilt servo control input. Control the tilt motor so that this signal becomes 2.5V.
7	TRK BAL ERR	I	A/D • Tracking balance error signal input This signal is A/D converted as the tracking offset control input.
8	SLD ERR	I	A/D • This signal is A/D converted as the slider servo control input. Control the slider motor so that this signal becomes 2.5V.
9	SLD POS	I	A/D • Pickup position detection switch input Detect the position by reading A/D input value which each switches are resistance divided.
10	FSEQ	I	Subcode sync. confirmity detection signal input "L"= Not confirmity "H"= Confirmity
11	C DETECT	I	Spindle over-current detection signal input "L" = Over current "H"= Normal
12	TRK BAL DRV	O	PWM • Output the tracking offset signal to PWM output, then use for auto tracking offset. 910 $\mu$ sec period, tri-state control H, L, Z
13	SHAKE	I/O	Handshake signal for data communication with the DVD mechanism control IC This pin is the bilateral data line and each microprocessor control the Input/Output.
14	RF CORRECTION	O	RF correction switch signal output "H"= Gain UP CD, CDV-A:Low, CAV inner circuit gain up, others are High.
15	SQOUT	I	Command data input from DSP Read out SUBQ
16	SO3/COIN	O	Command data output to DVP/DSP
17	SCK3/CQCK	O	DVP/DSP read/write command clock output Read-in at rising edge
18	SLD OUT	O	PWM • Slider control signal output 5V= FWD, 0V= REV, 2.5V= STOP 910 $\mu$ sec period, tri-state control
19	SI1	I	Data input from the DVD mechanism control IC
20	SO1	O	Serial data output to the DVD mechanism control IC
21	SCK	I/O	Clock for serial communication with the DVD mechanism control IC Becomes input mode without communicate with the DVD mechanism control IC
22	TRK 0 CRS	I	INT • Tracking error zero cross signal input Monitor this signal when searching track count in the miss clamp detection
23	SBSY	I	Subcode block sync. input
24	TILT OUT	I/O	LOAD/TILT control output PWM output 0V : Tray IN / Tilt DOWN, 5V : Tray OUT / Tilt UP, 2.5V : STOP
25	TURN OUT	O	Turn drive signal output
26	XPBV	I	Playback vertical sync. signal input of LD/CDV "L"= During vertical sync.
27	CNVSS	I	Ground for A/D conversion
28	XRESET	I	Reset signal input "L"= Reset "H"= Release reset Control with the DVD mechanism control IC.
29	XIN	I	9MHz clock oscillation input
30	XOUT	O	9MHz clock oscillation output

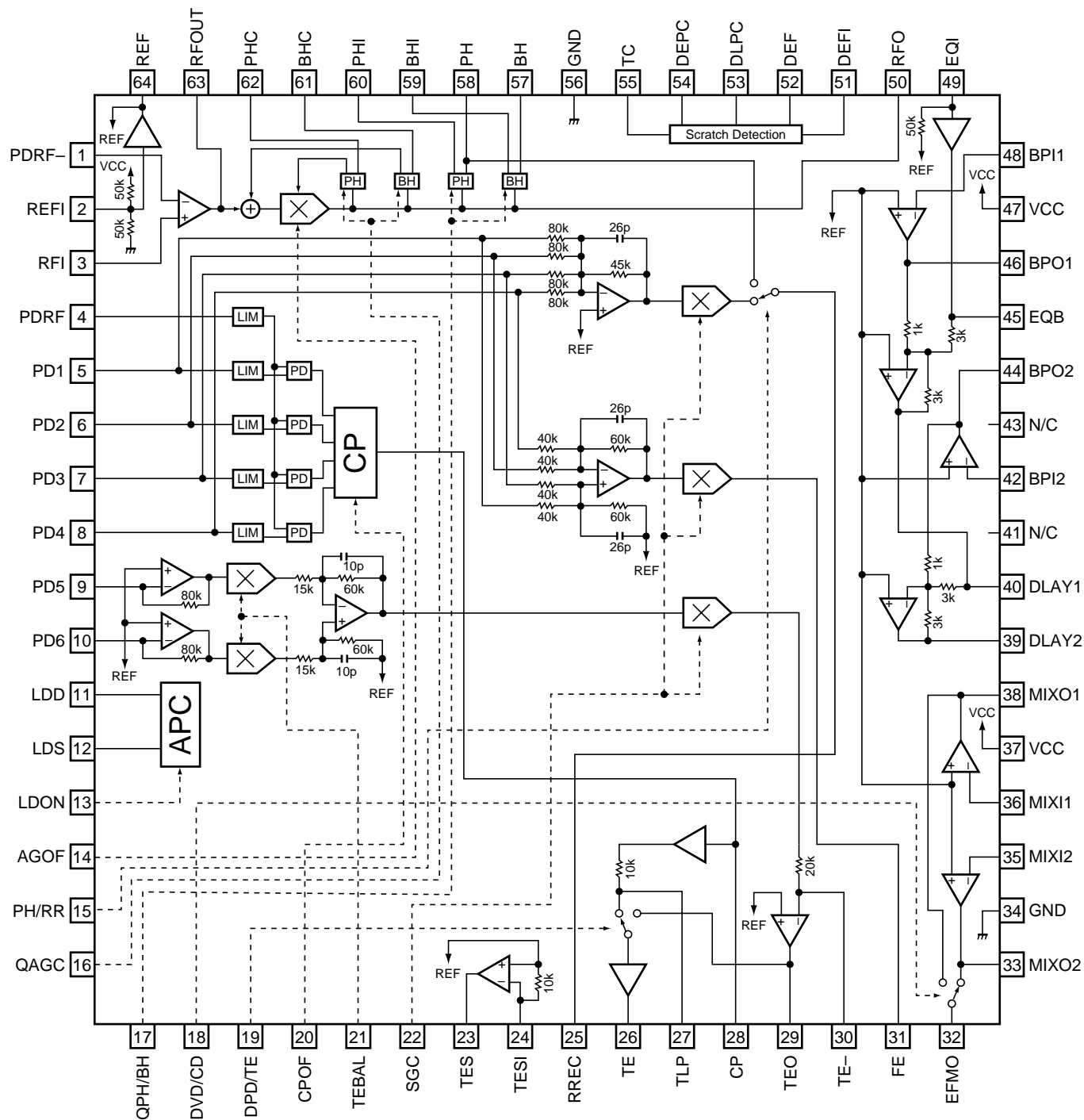
# DV-505, DVL-909, DV-S9

No.	Pin Name	I/O	Function
31	PHAI	O	Not used
32	GND	I	Ground
33	SW1	I	Switch input for Loading/Tilt position detection
34	SW3		
35	SW2		
36	TBCLOCK	I	Spindle lock signal input "L"= Unlock "H"= Lock
37	FG	I	Spindle motor FG signal input 16 outputs per rotation Used after dividing by 2 in the microprocessor
38	DATA	I	Input for Phillips code decoder with built-in mechanism controller
39	XPBH	I	Playback H-SYNC input for Phillips code decoder
40	XPBV	I	Playback V-SYNC input for Phillips code decoder
41	DEXT	O	Control signal output of video dynamic range extension "H"= ON "L"= OFF
42	WFM/VLOCK	I	Field discrimination signal from DVP "H"= ODD "L"= EVEN (with memory) VLOCK signal at clear scan (with no memory)
43	LATMEM	O	Serial control latch output of memory control IC PD3212A Latches at falling edge.
44	XPFR	O	PD0260A2 : 17MHz PLL control signal output H : Phase comparison L : Free-run PD0261A2 : Not used
45	XP/N2	O	PD0260A2 : NTSC/XPAL circuit switching signal output excepting VDEM H : NTSC L : PAL PD0261A2 : Not used
46	HQ	O	PD0260A2 : Control signal output of the High Quality circuit (analog NR) H : Through the HQ circuit L : Not through PD0261A2 : Not used
47	THLD	I	Track jump accelerating / decelerating signal input "L"= Others "H"= During accelerating / decelerating
48	LATDVP	O	PD6159B serial latch signal output Latches at falling edge.
49	SELTZC	O	TZC switch signal output "H"= at normal "L"= at CD/DVD disc discrimination
50	DOCINH	O	Control the clamp pulse and clamp killer circuit by tri-state value
51	XP/N1	O	PD0260A2 : NTSC/XPAL circuit switching signal output for VDEM H : NTSC L : PAL PD0261A2 : Not used
52	NROFF	O	Noise reduction control output by VDEM "L"= Normal "H"= Not NR
53	DSCDET	I	Disc present/absent detecting signal input by the tilt sum in the DVD P.U. mode "H"= Absent "L"= Present DEFECT input at LD P.U.
54	XTURNB	I	Turn switch input "H"= Side A / turn "L"= Side B
55	XTURN A	I	Turn switch input "H"= Side B / turn "L"= Side A
56	XLPO	I	LD P.U. out position detecting switch input "H"= LD P.U. active "L"= LD P.U. out position
57	VDET	I	Use for power abnormal signal input port "L"= Normal "H"= Abnormal
58	XFOK	I	Focus servo lock signal input "L"= Lock "H"= Unlock Use for lock detection of focus servo
59	WRQ	I	Subcode Q reading OK signal input "L"= NG "H"= OK This pin will be H when subcode Q data passed by CRC check.
60	AC3MUTE	O	Mute control signal output for AC3 Release MUTE during playback. "L"= Release MUTE "H"= MUTE
61	SQ1	O	Analog audio switching signal output 1/L "L"= Squelch OFF "H"= Squelch ON
62	SQ2	O	Analog audio switching signal output 2/R "L"= Squelch OFF "H"= Squelch ON
63	XCX	O	Analog audio CX noise reduction switching signal output "L"= CX ON "H"= CX OFF
64	XANA	O	Digital / Analog audio switching signal output "L"= Analog "H"= Digital

# LA9700M (DVDM ASSY : IC101)

• RF IC

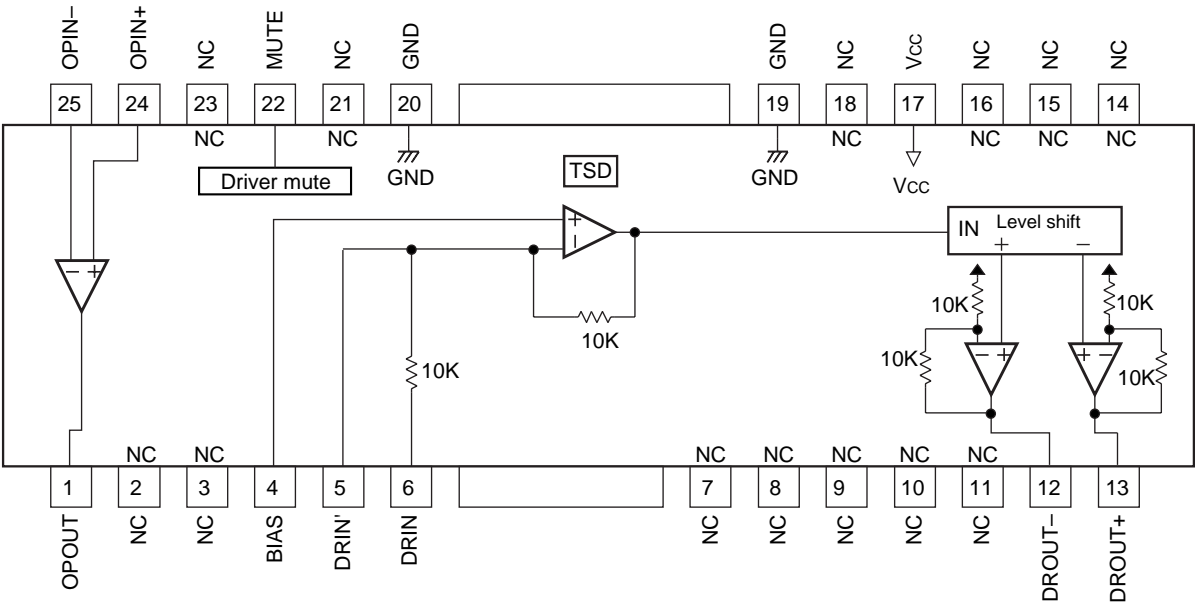
## • Block Diagram



BA6195FP (DVDM ASSY : IC161)

• Spindle Driver

• Block Diagram



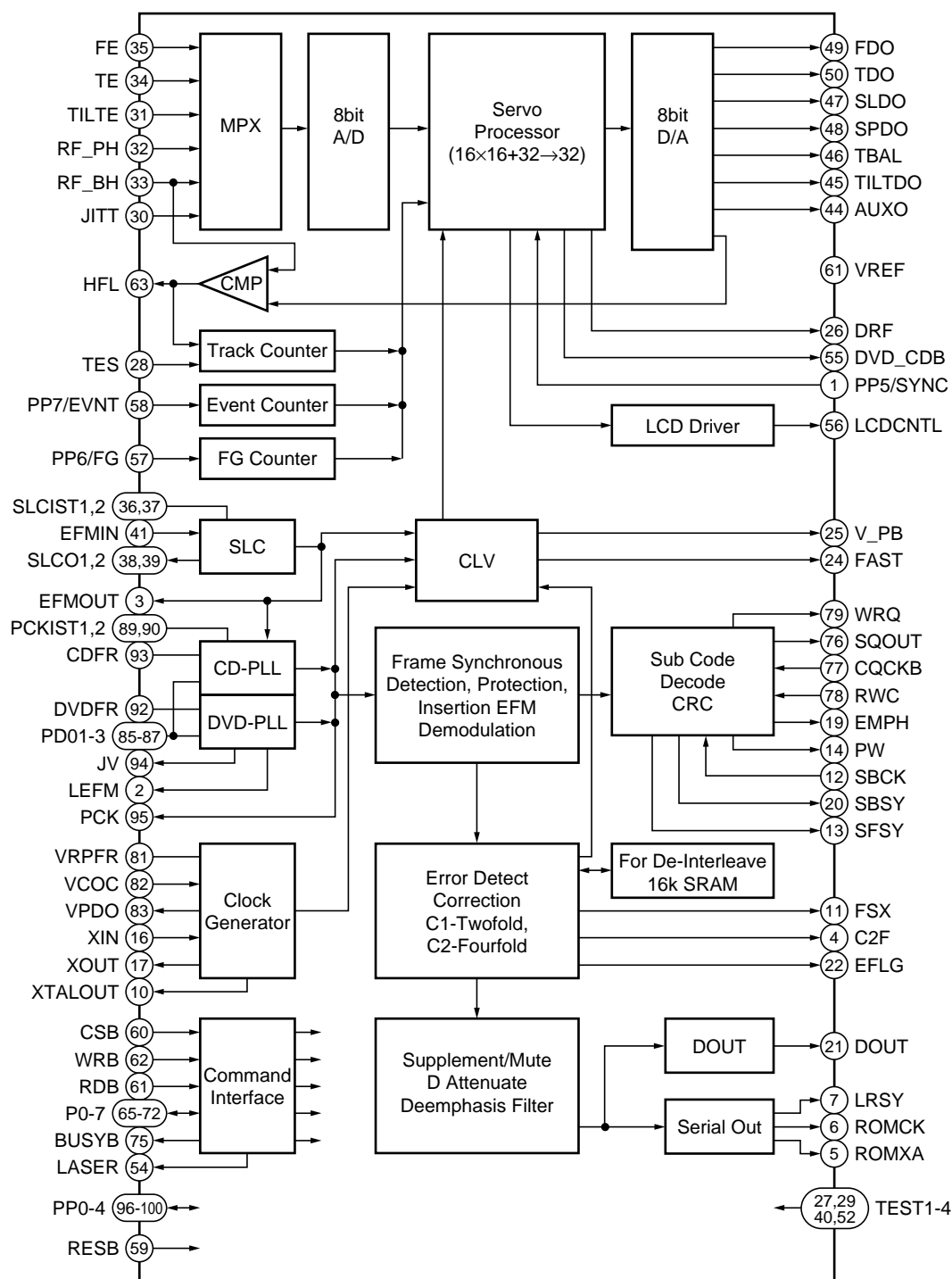
• Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	OPOUT	OP amp. output pin	14	N.C.	Non Connection
2	N.C.	Non Connection	15	N.C.	
3	N.C.		16	N.C.	
4	BIAS	Bias pin	17	VCC	Power supply pin
5	DRIN'	Driver gain adjustment pin	18	N.C.	Non Connection
6	DRIN	Driver gain input pin	19	GND	Sub-strait GND pin
7	N.C.	Non Connection	20	GND	
8	N.C.		21	N.C.	Non Connection
9	N.C.		22	MUTE	Mute pin
10	N.C.		23	N.C.	Non Connection
11	N.C.		24	OPIN +	OP amp. non-inverting input pin
12	DROUT -	Driver negative output pin (for input)	25	OPIN -	OP amp. inverting input pin
13	DROUT +	Driver positive output pin (for input)			

# ■ LC78650E-P (DVDM ASSY : IC201)(DVL-909 only)

• Servo DSP LSI

## • Block Diagram



## ● Pin Function

No.	Pin Name	I/O	Function
1	PP5/SYNC	I/O	General-purpose port input/output / DVD sync. signal input
2	LEFM	O	Output the state that cut and out a signal which was binary-stated value EFM/EFM + with PCK.
3	EFMOUT	O	Output the state that was binary-stated value EFM/EFM + .
4	C2F	O	C2 flag output
5	ROMXA	O	ROMXA data output
6	ROMCK	O	Shift clock output for ROMXA data output
7	LRSY	O	L/R clock output for ROMXA data output
8	DVDD2	–	5V power supply
9	VSS	–	GND
10	XTALOUT	O	External system clock output
11	FSX	O	CD 1 frame sync. signal output
12	SBCK	I	Subcode reading out clock input
13	SFSY	O	Frame sync. signal output of subcode
14	PW	O	Subcode P, Q, R, S, T, U, V and W output
15	VSS	–	GND for oscillation circuit
16	XIN	I	Connect a crystal resonator (16.9344MHz)
17	XOUT	O	Connect a crystal resonator
18	DVDD1	–	3.3V power supply of the oscillation circuit
19	EMPH	O	Monitor the deemphasis
20	SBSY	O	Sync. signal output of the subcode block
21	DOUT	O	Output for the digital audio I/F
22	EFLG	O	Error correction state monitor of the error correction C1 and C2
23	FSEQ	O	Detection monitor of the CD/DVD frame sync. signal
24	FAST	O	Playback speed monitor
25	V_PB	O	Monitor output of the rough servo/CLV control
26	DRF	O	In focus monitor
27	TEST3	I	Test input 3
28	TES	I	Tracking error signal input
29	TEST2	I	Test input 2
30	JITT	I	Jitter quantity detecting signal input of EFM/EFM + PLL
31	TILTE	I	Tilt error signal input
32	RF_PH	I	RF peak hold signal input
33	RF_BH	I	RF bottom hold signal input
34	TE	I	Tracking error signal input
35	FE	I	Focus error signal input
36	SLCIST1	–	Current setting pin 1 of the constant current charge pump for SLC
37	SLCIST2	–	Current setting pin 2 of the constant current charge pump for SLC
38	SLCO1	–	Control output 1 for SLC
39	SLCO2	–	Control output 2 for SLC
40	TEST1	I	Test input 1
41	EFMIN	I	EFM/EFM + input
42	AVDD	–	5V power supply of A/D and D/A for servo
43	AVSS	–	GND of A/D and D/A for servo
44	AUXO	O	DA auxiliary output
45	TILTDO	O	Tilt control signal output
46	TBAL	O	Tracking balance control signal output
47	SLDO	O	Sled control signal output
48	SPDO	O	Spindle control signal output
49	FDO	O	Focus control signal output
50	TDO	O	Tracking control signal output

No.	Pin Name	I/O	Function
51	VREF	–	Reference level of A/D and D/A for servo
52	TEST4	I	Test input 4
53	HFL	O	Track detection signal output
54	LASER	O	For laser ON/OFF control
55	DVD_CDB	O	Disc discrimination result output
56	LCDCNTL	O	Pickup liquid shutter control signal output
57	PP6/FG	I/O	General-purpose port input/output / FG signal input
58	PP7/EVNT	I/O	General-purpose port input/output / Event counter input
59	RESB	I	Reset input
60	CSB	I	Chip select input
61	RDB	I	Internal state reading signal input
62	WRB	I	Command / data writing signal input
63	DVDD2	–	5V power supply
64	VSS	–	GND
65	P0	I/O	Command / data input/output
66	P1		
67	P2		
68	P3		
69	P4		
70	P5		
71	P6		
72	P7		
73	VSS	–	GND
74	DVDD1	–	3.3V power supply for internal logic
75	BUSYB	O	Busy signal output of command process
76	SQOUT	O	Serial output of subcode Q
77	CQCKB	I	Data read-out shift clock input of subcode Q
78	RWC	I	Serial output update permission input of subcode Q
79	WRQ	O	Read out ready monitor of subcode Q
80	VSS	–	PLL GND for internal system clock
81	VRPFR	–	VCO oscillation range setting of PLL for internal system clock
82	VCOC	–	Connect a PLL filter for internal system clock
83	VPDO		
84	DVDD2	–	PLL 5V power supply for internal system clock
85	PDO1	–	PLL filter connection pin 1 for EFM/EFM + playback
86	PDO2	–	PLL filter connection pin 2 for EFM/EFM + playback
87	PDO3	–	PLL filter connection pin 3 for EFM/EFM + playback
88	VSS	–	PLL GND for EFM/EFM + playback
89	PCKIST1	–	Current setting 1 of PLL constant current charge pump for EFM/EFM + playback
90	PCKIST2	–	Current setting 2 of PLL constant current charge pump for EFM/EFM + playback
91	DVDD2	–	PLL 5V power supply for EFM/EFM + playback
92	DVDFR	–	VCO oscillation range setting of PLL for EFM + playback
93	CDFR	–	VCO oscillation range setting of PLL for EFM playback
94	JV	O	Jitter monitor of PLL clock for EFM/EFM + playback
95	PCK	O	Bit clock output for EFM/EFM + playback
96	PP0	I/O	General-purpose port input/output
97	PP1		
98	PP2		
99	PP3		
100	PP4		



## ■ PD4889A (DVDM ASSY : IC501)

### • Mechanism Control IC

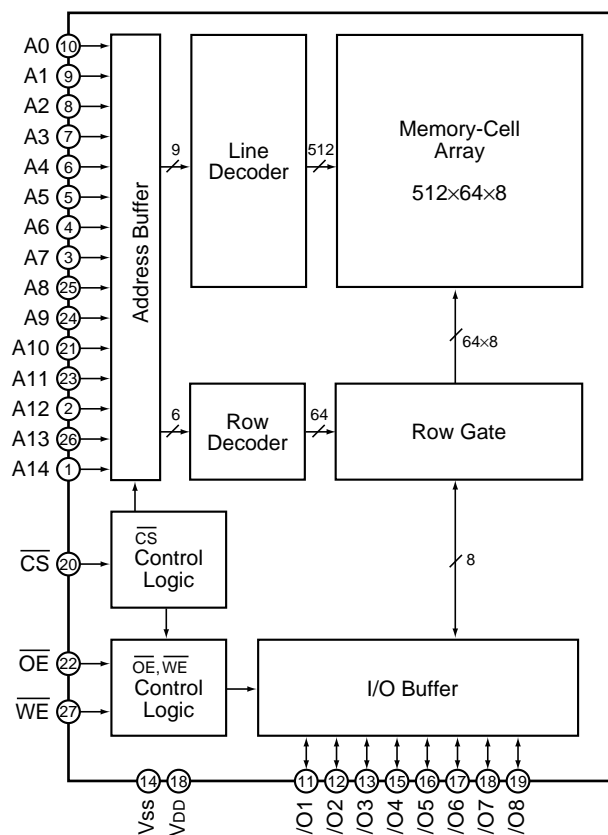
### • Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	LODDR	I/O	Loading motor drive output	33	XDSPRST	–	Reset pulse for servo DSP "L"
2	DVD/XCD	O	Clock switch H : DVD , L : CD	34	ASTB	O	Address strobe of multiplexed address/data bus "H"
3	AGOFF	O	Turn AGC of RF IC to OFF for "H"	35	XRST	I	CPU reset input "L"
4	EFLG	I	Count data input of error rate Measureable by using timer 1 and 2.	36	SBSY	INT	Subcode frame sync. input (H : S0+S1 period)
5	FSX	I	Error rate count area input (EFM frame sync.) H : C1 , L : C2	37	SHAKE	INT	Communication handshake of CLD mechanism controller "L" (DVL-909 only)
6	P35/PCL	–	Not used (pull down)	38	XABUSY	INT	DSP auto sequence busy input "L"
7	XTOFF	I/O	High impedance (input) at DEFECT ON "L" output at DEFECT OFF	39	XIRQ2	INT	LSI-11 interrupt input "L"
8	XCBUSY	I	DVD command reception is possible "L"	40	VDD	–	Power supply pin
9	VSS	–	GND	41	X2	–	Connect a ceramic resonator
10	MAD0	I/O	External address / data bus	42	X1	–	
11	MAD1			43	IC (Vpp)	–	GND
12	MAD2			44	XT2	–	Not used
13	MAD3			45	DVDPPK	I	Park position detection of compatible DVD pickup "L" (DVL-909 only)
14	MAD4			46	AVss	–	GND
15	MAD5			47	LODPOS	I	Loading and clamp position SW input
16	MAD6			48	SLDPOS	I	Slider position SW input
17	MAD7			49	DORPOS	I	Panel position SW input (DV-S9 only)
18	MA8	O	External address bus	50	XCURDET	I	Acuator over-current detection input (former TRDLMT) "L" Servo OFF for 300 ms.
19	MA9			51	DR/XLD	O	Panel and loading switch of PWM output Panel : H , loading : L (DV-S9 only)
20	MA10			52	MON	O	Spindle motor ON output "H"
21	MA11			53	XCD2X	O	Not used
22	MA12			54	OEICG	O	"H" : OEIC gain up to 6dB
23	MA13			55	AVDD	–	Power supply pin
24	VSS	–	GND	56	AVREF	–	Reference power supply pin
25	MA14	O	External address bus	57	P_ERR	O	Not used
26	MA15			58	P21/SO1	–	Not used (pull down)
27	DRF	I	(FOK) Focus OK input	59	P22/XSK1	–	Not used (pull down)
28	V_PB	I	(LOCK) EFM servo lock signal "H"/"L"= rough servo / phase servo	60	XCSB	O	DSP parallel command setting output "L"
29	P62	–	Not used (pull down)	61	CLD	O	CLD circuit block switch (DVL-909 only)
30	WRQ	I	Readable flag of subcode Q	62	LDSO	I	Inputs serial communication output of CLD mechanism controller (DVL-909 only)
31	XRD	O	CPU read pulse "L"	63	LDSI	O	Outputs serial communication input of CLD mechanism controller (DVL-909 only)
32	XWR	O	CPU write pulse "L"	64	LDSCK	I	Inputs serial communication clock output of CLD mechanism controller (DVL-909 only)

# SRM2B256SLMX70 (DVDM ASSY : IC502)

• 256 K SRAM (For Mechanism Control IC)

## Block Diagram



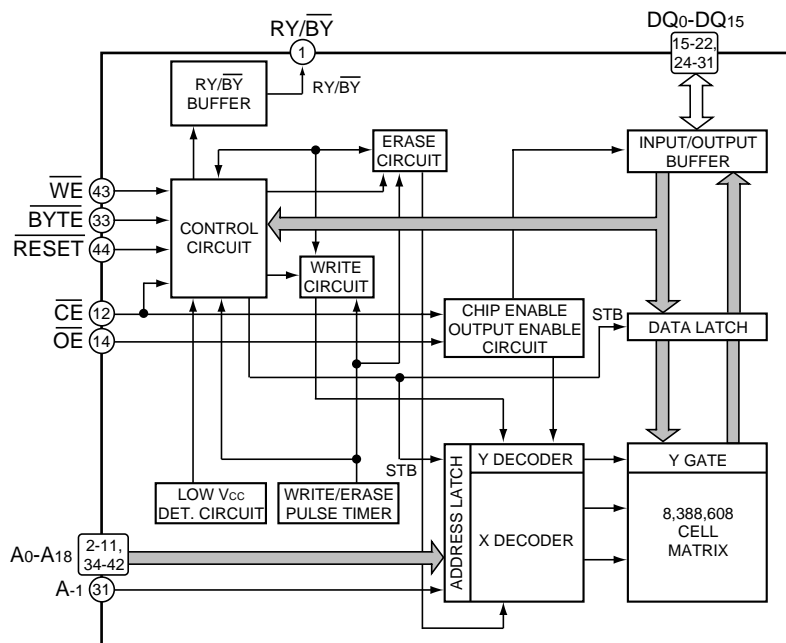
## Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	A14	Address input	15	I/O4	Data input/output
2	A12		16	I/O5	
3	A7		17	I/O6	
4	A6		18	I/O7	
5	A5		19	I/O8	
6	A4		20	$\overline{\text{CS}}$	Chip select
7	A3		21	A10	Address input
8	A2		22	$\overline{\text{OE}}$	Output enable
9	A1		23	A11	Address input
10	A0		24	A9	
11	I/O1	Data input/output	25	A8	
12	I/O2		26	A13	
13	I/O3		27	$\overline{\text{WE}}$	Write enable
14	VSS	GND (0V)	28	VDD	Power supply (2.7 to 5.5V)

## ■ VYW1536 (DVDM ASSY : IC603)(DV-505 and DVL-909 only)

- Flash ROM

### • Block Diagram



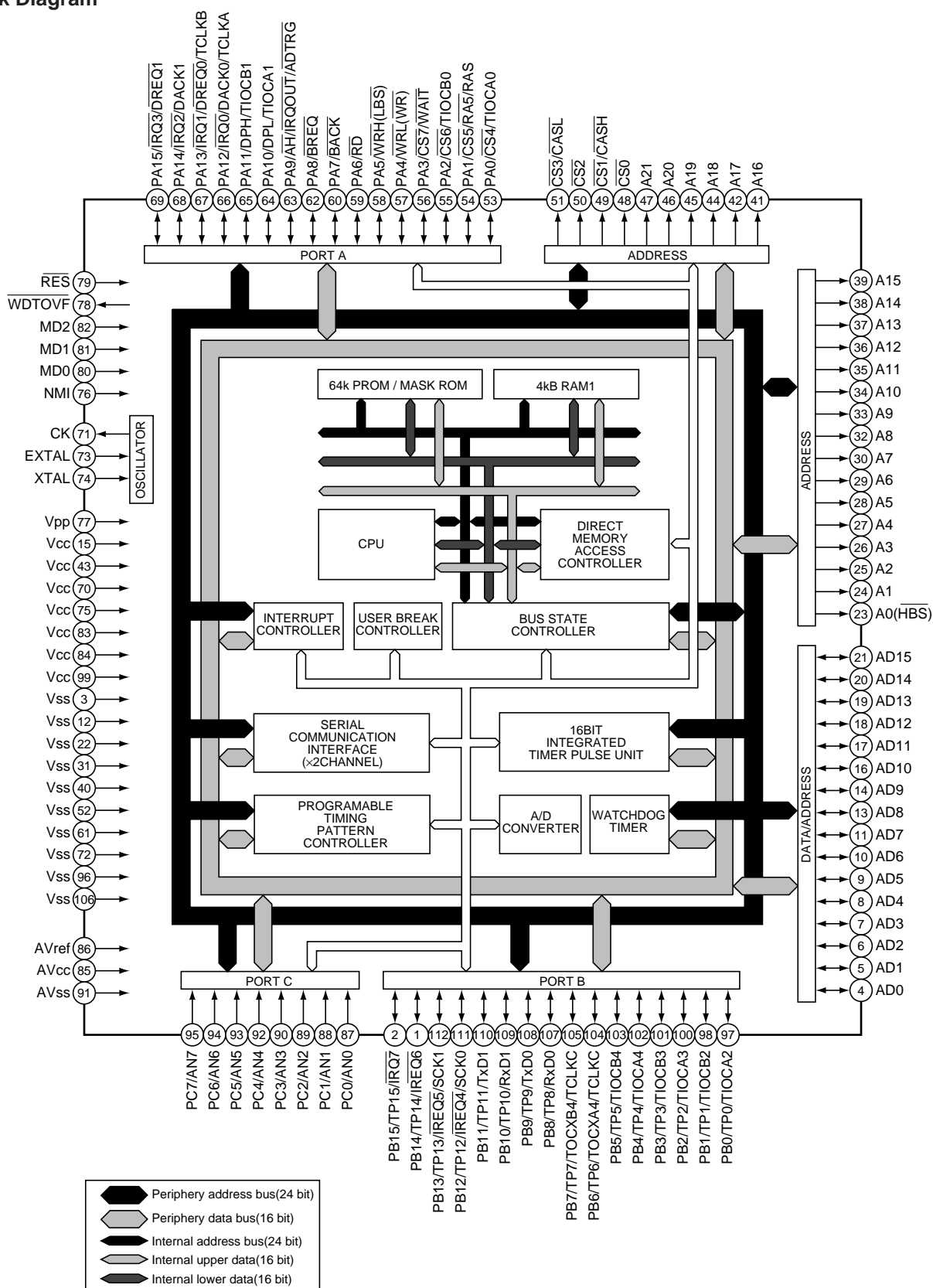
### • Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	RY/BY	Ready / Busy output	23	VCC	Power supply (+5.0V ± 10% or ± 5%)
2	A18	Address input	24	DQ4	Data input / output
3	A17		25	DQ12	
4	A7		26	DQ5	
5	A6		27	DQ13	
6	A5		28	DQ6	
7	A4		29	DQ14	
8	A3		30	DQ7	Data input/output / address input
9	A2		31	DQ15/A-1	
10	A1		32	VSS	Ground
11	A0		33	BYTE	Switch the 8 bit and 16 bit modes
12	CE	Chip enable	34	A16	Address input
13	VSS	Ground	35	A15	
14	OE	Output enable	36	A14	
15	DQ0	Data input/output	37	A13	
16	DQ8		38	A12	
17	DQ1		39	A11	
18	DQ9		40	A10	
19	DQ2		41	A9	
20	DQ10		42	A8	
21	DQ3		43	WE	Write enable
22	DQ11		44	RESET	Hardware reset

# **PD3381A (DVDM ASSY : IC601)**

## • System Control CPU

## • Block Diagram



# DV-505, DVL-909, DV-S9

## ● Pin Function

No.	Pin Name	I/O	Function
1	PB14/TP14/ $\overline{\text{IRQ6}}$	I/O	16 bit input/output (port B) / Timing pattern output / Interruption request
2	PB15/TP15/ $\overline{\text{IRQ7}}$		
3	VSS	I	Ground
4	AD0	I/O	16 bit bilateral data bus
5	AD1		
6	AD2		
7	AD3		
8	AD4		
9	AD5		
10	AD6		
11	AD7		
12	VSS	I	Ground
13	AD8	I/O	16 bit bilateral data bus
14	AD9		
15	VCC	I	Power supply
16	AD10	I/O	16 bit bilateral data bus
17	AD11		
18	AD12		
19	AD13		
20	AD14		
21	AD15		
22	VSS	I	Ground
23	A0 ( $\overline{\text{HBS}}$ )	O	Address bus output (upper byte strobe signal)
24	A1	O	Address bus output
25	A2		
26	A3		
27	A4		
28	A5		
29	A6		
30	A7		
31	VSS	I	Ground
32	A8	O	Address bus output
33	A9		
34	A10		
35	A11		
36	A12		
37	A13		
38	A14		
39	A15		
40	VSS	I	Ground
41	A16	O	Address bus output
42	A17		
43	VCC	I	Power supply

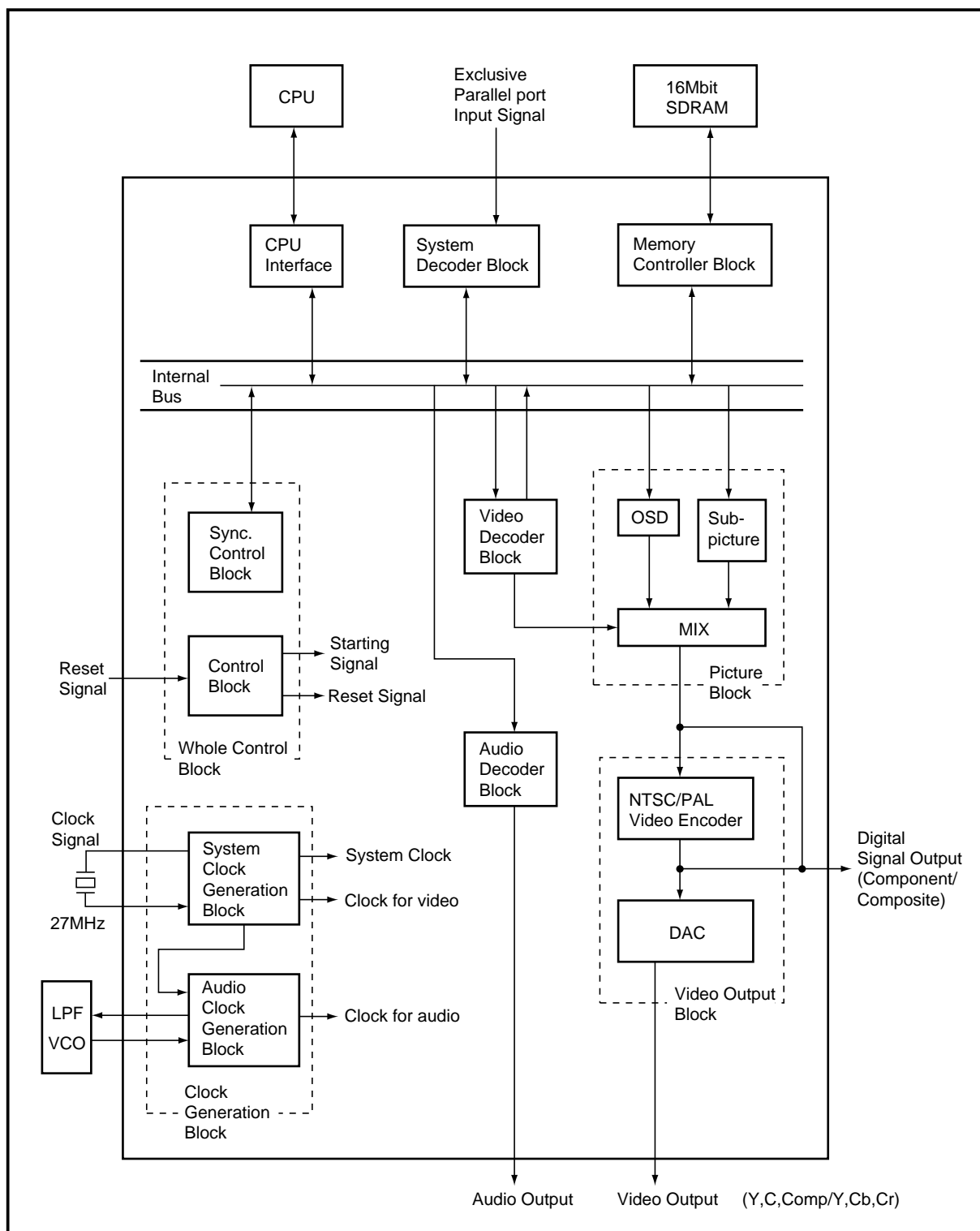
No.	Pin Name	I/O	Function
44	A18	O	Address bus output
45	A19		
46	A20		
47	A21		
48	$\overline{CS0}$	O	Chip select signal
49	$\overline{CS1}/\overline{CASH}$	O	Chip select signal / Column address strobe timing signal on the upper side of DRAM
50	$\overline{CS2}$	O	Chip select signal
51	$\overline{CS3}/\overline{CASL}$	O	Chip select signal / Column address strobe timing signal on the lower side of DRAM
52	VSS	I	Ground
53	$\overline{PA0}/\overline{CS4}/\overline{TIOCA0}$	I/O	16 bit input/output (port A) / Chip select signal / ITU input capture input/ITU output compare output (channel 0)
54	$\overline{PA1}/\overline{CS5}/\overline{RAS}$	I/O	16 bit input/output (port A) / Chip select signal / Low address strobe timing signal of DRAM
55	$\overline{PA2}/\overline{CS6}/\overline{TIOCB0}$	I/O	16 bit input/output (port A) / Chip select signal / ITU input capture input/ITU output compare output (channel 0)
56	$\overline{PA3}/\overline{CS7}/\overline{WAIT}$	I/O	16 bit input/output (port A) / Chip select signal / Wait input for bus cycle
57	$\overline{PA4}/\overline{WRL}(\overline{WR})$	I/O	16 bit input/output (port A) / External lower 8 bit writing (output at writing)
58	$\overline{PA5}/\overline{WRH}(\overline{LBS})$	I/O	16 bit input/output (port A) / External upper 8 bit writing (lower byte strobe signal)
59	$\overline{PA6}/\overline{RD}$	I/O	16 bit input/output (port A) / External reading out
60	$\overline{PA7}/\overline{BACK}$	I/O	16 bit input/output (port A) / Bus claim request acknowledge
61	VSS	I	Ground
62	$\overline{PA8}/\overline{BREQ}$	I/O	16 bit input/output (port A) / Bus claim request
63	$\overline{PA9}/\overline{AH}/\overline{IRQOUT}/\overline{ADTRG}$	I/O	16 bit input/output (port A) / Address hold timing signal / Interruption request output at slave / A/D conversion trigger input
64	$\overline{PA10}/\overline{DPL}/\overline{TIOCA1}$	I/O	16 bit input/output (port A) / Data bus parity on the lower side / ITU input capture input/ITU output compare output (channel 1)
65	$\overline{PA11}/\overline{DPH}/\overline{TIOCB1}$	I/O	16 bit input/output (port A) / Data bus parity on the upper side / ITU input capture input/ITU output compare output (channel 1)
66	$\overline{PA12}/\overline{IRQ0}/\overline{DACK0}/\overline{TCLKA}$	I/O	16 bit input/output (port A) / Interruption request / DMA transfer request reception (channel 0) / ITU timer clock input
67	$\overline{PA13}/\overline{IRQ1}/\overline{DREQ0}/\overline{TCLKB}$	I/O	16 bit input/output (port A) / Interruption request / DMA transfer request (channel 0) / ITU timer clock input
68	$\overline{PA14}/\overline{IRQ2}/\overline{DACK1}$	I/O	16 bit input/output (port A) / Interruption request / DMA transfer request reception (channel 1)
69	$\overline{PA15}/\overline{IRQ3}/\overline{DREQ1}$	I/O	16 bit input/output (port A) / Interruption request / DMA transfer request (channel 1)
70	VCC	I	Power supply
71	CK	O	System clock output
72	VSS	I	Ground
73	EXTAL	I	Crystal oscillator input      External clock input
74	XTAL	I	Crystal oscillator input
75	VCC	I	Power supply
76	NMI	I	Non-maskable interruption input
77	VPP	I	Power supply of PROM program
78	$\overline{WDTOVF}$	O	Watchdog timer over-flow output
79	$\overline{RES}$	I	Reset input
80	MD0	I	Mode setting pins
81	MD1		
82	MD2		
83	VCC	I	Power supply
84	VCC		

No.	Pin Name	I/O	Function
85	AVCC	I	Analog power supply
86	AVREF	I	Analog reference power supply
87	PC0/AN0	I	8 bit input (port C) / Analog signal input
88	PC1/AN1		
89	PC2/AN2		
90	PC3/AN3		
91	AVSS	I	Analog Ground
92	PC4/AN4	I	8 bit input (port C) / Analog signal input
93	PC5/AN5		
94	PC6/AN6		
95	PC7/AN7		
96	VSS	I	Ground
97	PB0/TP0/TIOCA2	I/O	16 bit input/output (port B) / Timing pattern output / ITU input capture input/ITU output compare output (channel 2)
98	PB1/TP1/TIOCB2		
99	VCC	I	Power supply
100	PB2/TP2/TIOCA3	I/O	16 bit input/output (port B) / Timing pattern output / ITU input capture input/ITU output compare output (channel 3)
101	PB3/TP3/TIOCB3		
102	PB4/TP4/TIOCA4	I/O	16 bit input/output (port B) / Timing pattern output / ITU input capture input/ITU output compare output (channel 4)
103	PB5/TP5/TIOCB4		
104	PB6/TP6/TOCXA4/TCLKC	I/O	16 bit input/output (port B) / Timing pattern output / ITU output compare output (channel 4) / ITU timer clock input
105	PB7/TP7/TOCXB4/TCLKD		
106	VSS	I	Ground
107	PB8/TP8/RXD0	I/O	16 bit input/output (port B) / Timing pattern output / Receive data input (channel 0)
108	PB9/TP9/TXD0	I/O	16 bit input/output (port B) / Timing pattern output / Transmission data output (channel 0)
109	PB10/TP10/RXD1	I/O	16 bit input/output (port B) / Timing pattern output / Receive data input (channel 1)
110	PB11/TP11/TXD1	I/O	16 bit input/output (port B) / Timing pattern output / Transmission data output (channel 1)
111	PB12/TP12/IRQ4/SCK0	I/O	16 bit input/output (port B) / Timing pattern output / Interruption request / Serial clock input/output (channel 0)
112	PB13/TP13/IRQ5/SCK1	I/O	16 bit input/output (port B) / Timing pattern output / Interruption request / Serial clock input/output (channel 1)

# **MB86371 (DVDM ASSY : IC801)**

• MPEG2 Decoder LSI For DVD

## • Block Diagram





## ● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	CLKSEL	I	ON/OFF signal of PLL ("H" : ON, "L" : OFF)	27	VDD	–	3.3V power supply
2	DIGCPN7	O	Digital component signal output (MSB) Digital Y signal output (9-bit) (MSB)	28	DIGCOMP4	O	Digital composite signal output Digital C signal output
3	VSS	–	GND	29	DIGCOMP3		
4	DIGCPN6	O	Digital component signal output Digital Y signal output (9-bit)	30	DIGCOMP2		
5	DIGCPN5			31	DIGCOMP1		
6	DIGCPN4			32	DIGCOMP0		Digital composite signal output (LSB) Digital C signal output (LSB)
7	DIGCPN3			33	DACK	O	27 MHz clock output
8	DIGCPN2			34	N.C.	–	Non connection
9	DIGCPN1			35	VSSA3	–	GND (D/A converter)
10	VDD	–	3.3V power supply	36	ANAC	O	Analog color (C) output signal
11	DIGCPN0	O	Digital component signal output (LSB) Digital Y signal output (9-bit) (LSB)	37	VDDA3	–	3.3V power supply (for built-in D/A converter only)
12	RBSEL	O	Cb and Cr discrimination signal at the digital component signal output. LSB at the digital Y signal output.	38	VSSA2	–	GND (D/A converter)
13	XHS	O	Horizontal sync. output signal	39	ANAY	O	Analog luminance (Y) output signal
14	XVS	O	Vertical sync. output signal	40	VDDA2	–	3.3V power supply (for built-in D/A converter only)
15	VSS	–	GND	41	VREF	I	Reference voltage for D/A converter
16	XRESET	I	LSI reset signal	42	VRO	O	Internal current setting pin of D/A converter
17	XLDCSYNC	I	External sync. signal input (LD mode)	43	N.C.	–	Non connection
18	KEY	O	KEY signal for LD and OSD overlay (LD mode)	44	VSSA1	–	GND (D/A converter)
19	PD	O	Phase comparison result output signal of horizontal sync. (LD mode)	45	ANACOMP	O	Analog composite output signal
20	VFLD	O	Field discrimination signal at the digital signal output H : even field L : odd field	46	VDDA1	–	3.3V power supply (for built-in D/A converter only)
21	DIGCOMP9	O	Digital composite signal output (MSB) Digital C signal output (MSB)	47	BF	O	Burst flag signal
22	DIGCOMP8		Digital composite signal output Digital C signal output	48	XBLK	O	H/V composite blanking signal
23	DIGCOMP7			49	N.C.	–	Non connection
24	DIGCOMP6			50	VSS	–	GND
25	DIGCOMP5			51	TEST0	–	Normally, set to "open".
26	VSS	–	GND	52	TEST1	–	"L" status normally

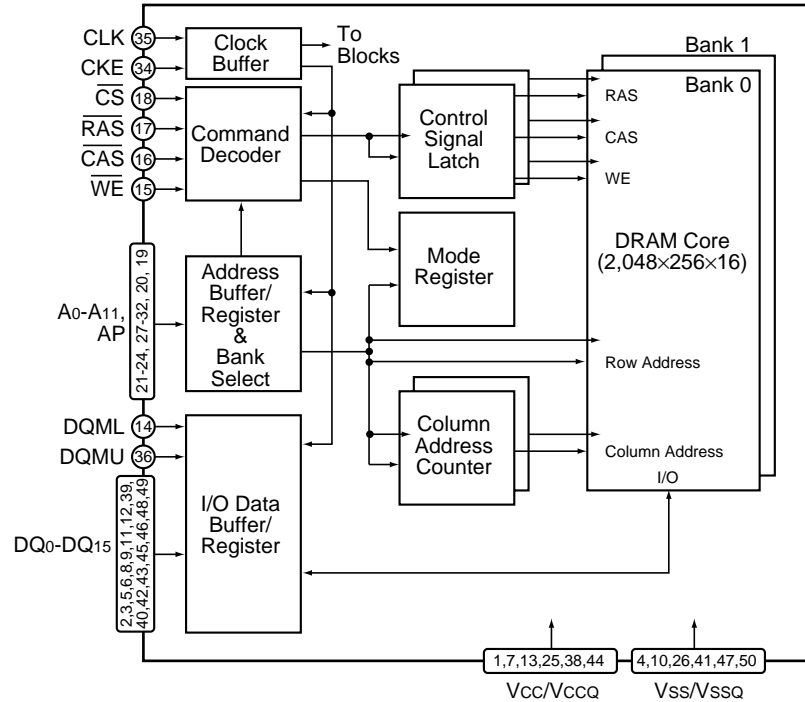
No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
53	DAIIN	I	Digital data input of external input (SPDIF)	92	HADRS10	I	CPU address bus signal (MSB)
54	CDDATA	I	Audio data input of external input (correspond to CD)	93	HADRS9	I	CPU address bus signal
55	CDLR	I	Data channel clock input of external input (correspond to CD)	94	HADRS8		
56	CDBCK	I	Data clock input of external input (correspond to CD)	95	HADRS7		
57	AODATA3	O	Audio decode data	96	VSS	–	GND
58	AODATA2			97	VDD	–	3.3V power supply
59	AODATA1			98	HADRS6	I	CPU address bus signal
60	VSS	–	GND	99	HADRS5		
61	VDD	–	3.3V power supply	100	HADRS4		
62	AODATA0	O	Audio decode data	101	HADRS3		CPU address bus signal (LSB)
63	AOPCM	O	Digital audio interface output (compression data)	102	HADRS2		
64	AODAI	O	Digital audio interface output (decode data)	103	HDATA15	I/O	CPU data bus signal (MSB)
65	LRCK	O	Data channel clock for D/A and digital filter	104	HDATA14		CPU data bus signal
66	AOMCK	O	Master clock for D/A and digital filter	105	HDATA13		
67	BCK	O	Bit clock for D/A and digital filter	106	HDATA12		
68	ICED1	–	Pin for emulator Normally, set to "open".	107	VSS	–	GND
69	ICED0			108	HDATA11	I/O	CPU data bus signal
70	ICEBRK			109	HDATA10		
71	XDSPRST			110	HDATA9		
72	VSS	–	GND	111	HDATA8		
73	N.C.	–	Non connection	112	HDATA7	I/O	CPU data bus signal
74	TEST2	–	Normally, set to "open".	113	HDATA6		
75	TEST3			114	VDD	–	3.3V power supply
76	TEST4			115	HDATA5	I/O	CPU data bus signal
77	TEST5			116	HDATA4		
78	SD7	I	Parallel data input	117	HDATA3		
79	VDD	–	3.3V power supply	118	HDATA2	I/O	CPU data bus signal
80	SD6	I	Parallel data input	119	VSS	–	GND
81	SD5			120	HDATA1	I/O	CPU data bus signal
82	SD4			121	HDATA0		CPU data bus signal (LSB)
83	SD3			122	BUSSEL	I	Bus width selection signal (0 : 8-bit bus, 1 : 16-bit bus)
84	SD2			123	XOSDACK	I	OSD data acknowledge signal
85	VSS	–	GND	124	XOSDREQ	O	OSD data request signal
86	SD1	I	Parallel data input	125	HCPUSEL1	I	CPU selection signal (00 :SPARC, 01 :86 system, 10 :68 system, 11 :Reserve)
87	SD0			126	HCPUSEL0		
88	XERR	I	Error input signal	127	XINT3	O	Interrupt request signal to the CPU
89	XSACK	I	Acknowledge signal	128	XINT2		
90	XTEST	I	Set to "H" at normal use	129	XINT1		
91	SREQ	O	Data request signal	130	VSS	–	GND

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
131	VDD	–	3.3V power supply	170	XMDRCAS	O	CAS signal for SDRAM
132	XINT0	O	Interrupt request signal to CPU	171	XMDRDQM1	O	Input mask / output enable signal for SDRAM
133	XEXTRDY	O	SPARC, 68 system : Ready signal to CPU 86 system : Acknowledge (ACK) signal to CPU	172	VSS	–	GND
134	HRW	I	CPU read / write signal	173	XMDRWE	O	Write enable signal for SDRAM
135	HCLKIN	I	Host clock input	174	XMDRDQM0	O	Input mask / output enable signal for SDRAM
136	XHCS	I	LSI chip select signal	175	MDRDAT8	I/O	Data bus signal for SDRAM
137	XHAS	I	SPARC, 68 system : CPU address strobe 86 system : CPU address status	176	VSS	–	GND
138	XHBE3	I	CPU byte enable signal	177	MDRDAT7	I/O	Data bus signal for SDRAM
139	XHBE2			178	MDRDAT9		
140	XHBE1			179	MDRDAT6		
141	XHBE0			180	MDRDAT10		
142	VSS	–	GND	181	MDRDAT5		
143	MDRADR4	O	Address signal for SDRAM	182	VSS	–	GND
144	MDRADR3			183	VDD	–	3.3V power supply
145	MDRADR5			184	MDRDAT11	I/O	Data bus signal for SDRAM
146	MDRADR2			185	MDRDAT4		
147	VDD	–	3.3V power supply	186	MDRDAT12		
148	VSS	–	GND	187	MDRDAT3		
149	MDRADR6	O	Address signal for SDRAM	188	MDRDAT13		
150	MDRADR1			189	VSS	–	GND
151	MDRADR7			190	MDRDAT2	I/O	Data bus signal for SDRAM
152	MDRADR0		Address signal for SDRAM (LSB)	191	MDRDAT14		
153	MDRADR8		Address signal for SDRAM	192	MDRDAT1		
154	VSS	–	GND	193	MDRDAT15		Data bus signal for SDRAM (MSB)
155	TEST6	–	"L" status normally	194	MDRDAT0	I/O	Data bus signal for SDRAM (LSB)
156	TEST7			195	VSS	–	GND
157	TEST8			196	N.C.	–	Non connection
158	TEST9			197	ICK27M	I	System clock input
159	MDRADR10	O	Address signal for SDRAM	198	VSS	–	GND
160	MDRADR9			199	OCK27M	O	System clock output
161	MDRADR11		Address signal for SDRAM (MSB)	200	VSSA(VCO)	–	GND (for VCO only)
162	XMDRCS	O	Chip select signal for SDRAM	201	VDDA(VCO)	–	3.3V power supply (for VCO only)
163	MDRCKE	O	Clock enable signal for SDRAM	202	ILPF	O	PLL block inverter output for audio
164	VSS	–	GND	203	MLPF	I	PLL block inverter input for audio
165	VDD	–	3.3V power supply	204	OLPF	O	Phase detector output for audio
166	XMDRRAS	O	RAS signal for SDRAM	205	OVCO	I	VCO input for audio clock
167	MDRCLK	O	Clock output signal for SDRAM	206	VSS	–	GND
168	VSS	–	GND	207	XPLLST	I	PLL section reset signal
169	MDRCLKIN	I	Clock input signal for SDRAM	208	XSYNCRST	I	SYNC reset signal

# **MB811171622A-100FN (DVD M ASSY : IC802)**

• Code Buffer (16M bit SDRAM)

## • Block Diagram

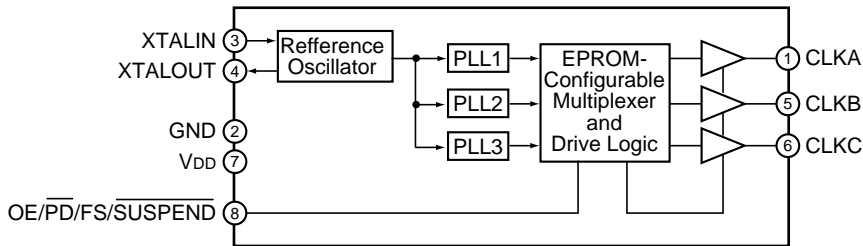


## • Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	VCC	Power supply (+ 3.3V)	26	VSS	Ground
2	DQ0	Data input/output	27	A4	Address input Row : A0 to A10 , Column : A0 to A7
3	DQ1		28	A5	
4	VSSQ	Ground	29	A6	
5	DQ2	Data input/output	30	A7	
6	DQ3		31	A8	
7	VCCQ	Power supply (+ 3.3V)	32	A9	
8	DQ4	Data input/output	33	DU	Don't use (use for open)
9	DQ5		34	CKE	Clock enable
10	VSSQ	Ground	35	CLK	Clock input
11	DQ6	Data input/output	36	DQMU	Input mask / Output enable
12	DQ7		37	DU	Don't use (use for open)
13	VCCQ	Power supply (+ 3.3V)	38	VCCQ	Power supply (+ 3.3V)
14	DQML	Input mask / Output enable	39	DQ8	Data input/output
15	WE	Write enable	40	DQ9	
16	CAS	Column address strobe	41	VSSQ	Ground
17	RAS	Row address strobe	42	DQ10	Data input/output
18	CS	Chip select	43	DQ11	
19	A11 (BA)	Bank select	44	VCCQ	Power supply (+ 3.3V)
20	A10/AP	Address input Row : A0 to A10 , Column : A0 to A7 / Auto pre-charge enable	45	DQ12	Data input/output
21	A0	Address input Row : A0 to A10 , Column : A0 to A7	46	DQ13	
22	A1		47	VSSQ	Ground
23	A2		48	DQ14	Data input/output
24	A3		49	DQ15	
25	VCC	Power supply (+ 3.3V)	50	VSS	Ground

■ CY2081SL-611 (DVDM ASSY : IC813)

- Clock Generate IC
- Block Diagram



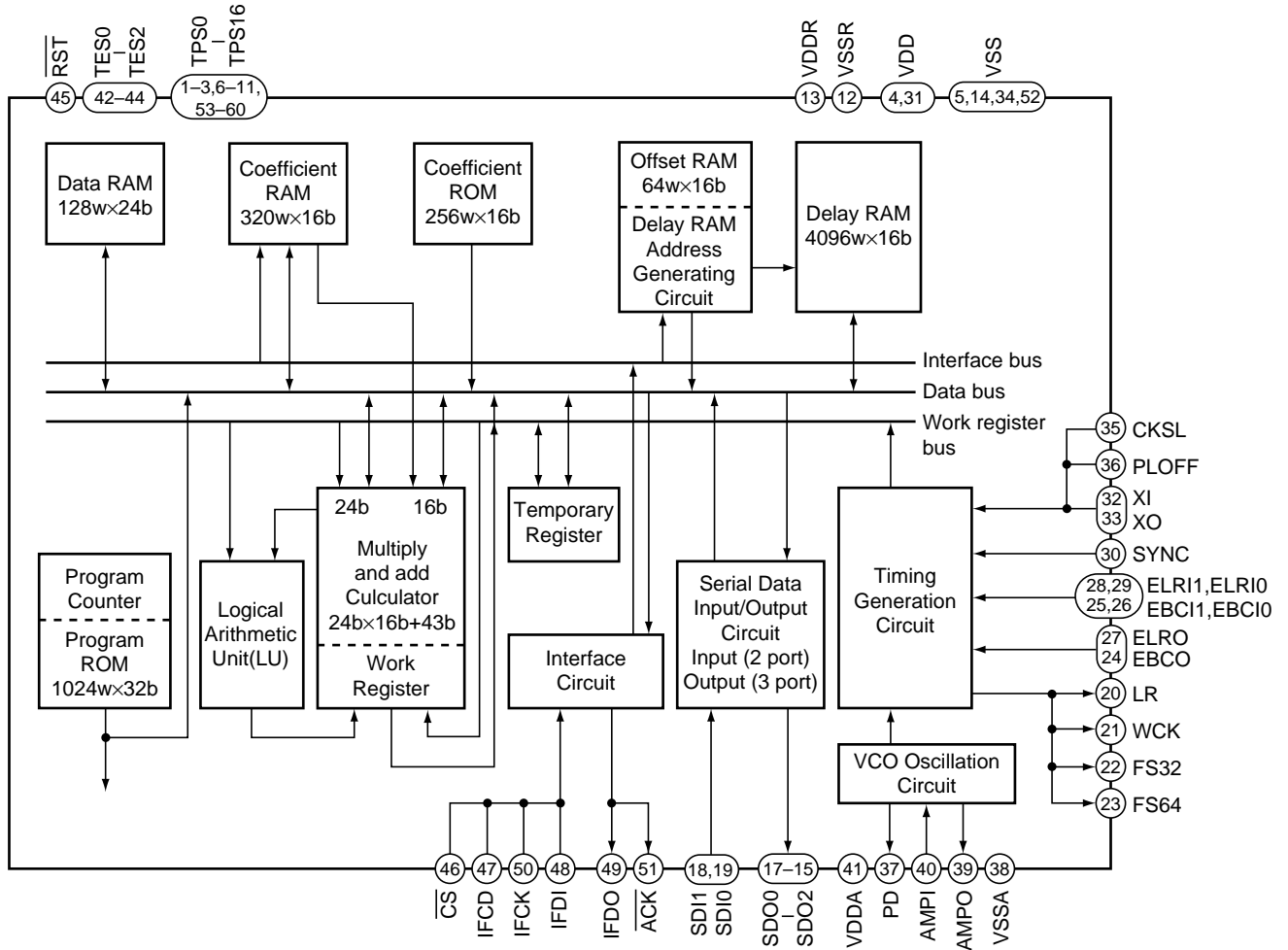
• Pin Function

No.	Pin Name	Function
1	CLKA	Configurable clock output
2	GND	Ground
3	XTALIN	Reference crystal input or external reference clock input
4	XTALOUT	Reference crystal feedback
5	CLKB	Configurable clock output
6	CLKC	Configurable clock output
7	VDD	Voltage supply
8	OE/ $\overline{\text{PD}}$ / $\overline{\text{FS}}$ / $\overline{\text{SUSPEND}}$	Output control pin Either active-High output enable, active-Low power down, CLKA frequency select, or active-Low suspend input

# **PD2058A ( DVDMM ASSY : IC901 )(DV-505 and DVL-909 only)**

• Digital Signal Processor For Audio

## • Block Diagram



## • Pin Function

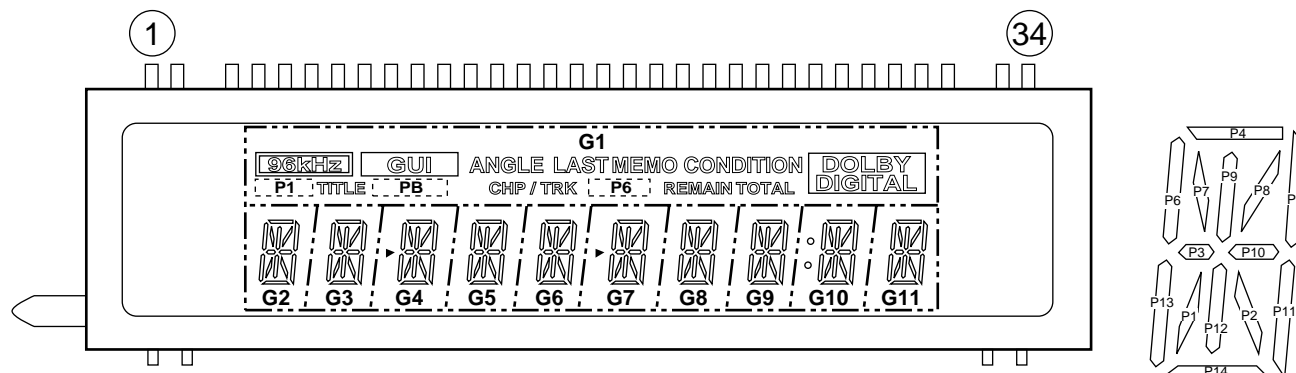
No.	Pin Name	I/O	Function
1	TP8	O	Test data output pin Normally, use with open.
2	TP7		
3	TP6		
4	VDD	–	Power supply pin
5	VSS	–	Ground pin
6	TP5	O	Test data output pin Normally, use with open.
7	TP4		
8	TP3		
9	TP2		
10	TP1		
11	TP0		

No.	Pin Name	I/O	Function
12	VSSR	–	Ground pin for internal delay RAM (DLRAM)
13	VDDR	–	Power supply pin for internal delay RAM (DLRAM)
14	VSS	–	Ground pin
15	SDO2	O	Serial data output pin Output data length is able to select the 24-bit or 16-bit by controlling the microprocessor.
16	SDO1		
17	SDO0		
18	SDI1	I	Serial data input pin Input data length is able to select the 24-bit or 16-bit by controlling the microprocessor.
19	SDI0		
20	LR	O	LR clock output pin (1 fs)
21	WCK	O	Word clock output pin (2 fs)
22	FS32	O	Bit clock output pin (32 fs)
23	FS64	O	Bit clock output pin (64 fs)
24	EBC0	I	Bit clock input pin Inputs shift clock for SDO0/1/2 data output.
25	EBC1	I	Bit clock input pin
26	EBC10		Inputs shift clock for SDI0/1 data input.
27	ELRO	I	LR clock input pin Inputs LR clock for SDO0/1/2 data output.
28	ELR11	I	LR clock input pin
29	ELR10		Inputs LR clock for SDI0/1 data input.
30	SYNC	I	Sync. signal input pin Turn the program counter into "0" forcibly by the edge of SYNC signal. Moreover, set the polarity by controlling the microprocessor.
31	VDD	–	Power supply pin
32	XI	I	Crystal oscillator connection pin / external clock input pin
33	XO	O	Crystal oscillator connection pin
34	VSS	–	Ground pin
35	CKSL	I	Oscillation clock switch pin L : correspond to 384 fs H : correspond to 512 fs
36	PLOFF	I	X'tal oscillation mode / VCO oscillation mode switch pin L :built-in VCO oscillation mode H :X'tal oscillation mode
37	PD	O	Phase comparison data output pin
38	VSSA	–	Analog ground pin
39	AMPO	O	Amp. output pin for low-pass filter
40	AMPI	I	Amp. input pin for low-pass filter
41	VDDA	–	Analog power supply pin
42	TES0	I	Test pin Normally, use for "H" or open.
43	TES1		
44	TES2		
45	RST	I	Reset signal input pin
46	CS	I	Chip select signal input pin When CS is L active, data is able to transfer from the microprocessor.
47	IFCD	I	Command or data input mode selection pin from the microprocessor Recognize the command for "H" period and the data for "L" period.
48	IFDI	I	Microprocessor data input pin Receive the command and data by LSB first.
49	IFDO	O	Data output pin of data bus (DBUS) Transmit the data of data bus to the microprocessor by LSB first.
50	IFCK	I	Shift clock input pin for microprocessor data
51	ACK	O	Acknowledge signal output pin for microprocessor When parity of command and data is OK, outputs the acknowledge signal.
52	VSS	–	Ground pin
53	TP16	O	Test data output pin Normally, use with open.
54	TP15		
55	TP14		
56	TP13		
57	TP12		
58	TP11		
59	TP10		
60	TP9		

## 5. FL INFORMATION

### ■ VAW1046 (FLKB ASSY : V101)(DV-505 and DVL-909 only)

#### • FL DISPLAY



#### • ANODE AND GRID ASSIGNMENT

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11
P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1
P2	ANGLE	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2
P3	TITLE	P3	P3	P3	P3	P3	P3	P3	P3	P3	P3
P4	LAST MEMO	P4	P4	P4	P4	P4	P4	P4	P4	P4	P4
P5	CONDITION	P5	P5	P5	P5	P5	P5	P5	P5	P5	P5
P6	P6	P6	P6	P6	P6	P6	P6	P6	P6	P6	P6
P7	CHP/TRK	P7	P7	P7	P7	P7	P7	P7	P7	P7	P7
P8	P8	P8	P8	P8	P8	P8	P8	P8	P8	P8	P8
P9	REMAIN	P9	P9	P9	P9	P9	P9	P9	P9	P9	P9
P10	DOLBY DIGITAL	P10	P10	P10	P10	P10	P10	P10	P10	P10	P10
P11	GUI	P11	P11	P11	P11	P11	P11	P11	P11	P11	P11
P12	96kHz	P12	P12	P12	P12	P12	P12	P12	P12	P12	P12
P13		P13	P13	P13	P13	P13	P13	P13	P13	P13	P13
P14		P14	P14	P14	P14	P14	P14	P14	P14	P14	P14
P15	TOTAL										

#### • PIN ASSIGNMENT

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Assignment	F1	F1	NP	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2

Pin No.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Assignment	P1	G11	G10	G9	G8	NL	NL	G7	G6	G5	G4	G3	G2	G1	NP	F2	F2

F1, F2 : Filament

G1~G11 : Grid

P1~P15 : Anode

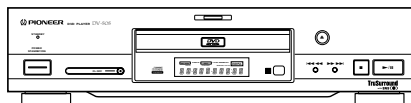
NP : No Pin

NL : No Lead



# Service Manual

**PIONEER**  
The Art of Entertainment



ORDER NO.  
**RRV1887**

## DVD PLAYER DV-505

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

Type	Model	Power Requirement	The voltage can be converted by the following method.	Regional restriction codes (region number)
	DV-505			
WY	O	AC 220 – 240V	_____	2
WY/RD	O	AC 220 – 240V	_____	4
WYW/SP	O	AC 220 – 240V	_____	2
RD/RC	O	AC 110 – 127/220 – 240V	Automatic select	3
RAM	O	AC 110 – 127/220 – 240V	Automatic select	6
RL	O	AC 110 – 127/220 – 240V	Automatic select	3

- Refer to the service guide RRV1896 for DV-505.  
IC information is described in the service guide.

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6. ADJUSTMENT .....	38		

# 1. SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

## IMPORTANT

THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

## LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER : 7 mw  
WAVELENGTH : 650 nm

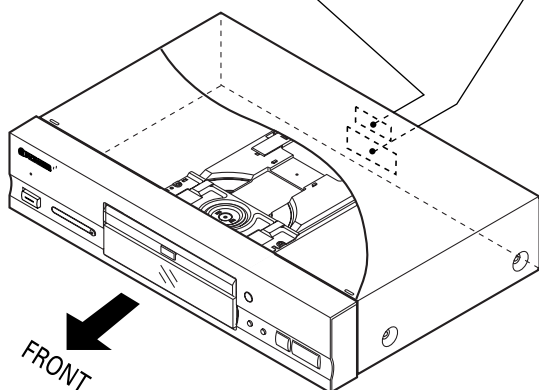
## LABEL CHECK

**CLASS 1  
LASER PRODUCT**

(Printed on the Rear Panel)

**CAUTION** : LASER RADIATION WHEN OPEN.  
: AVOID EXPOSURE TO BEAM.  
**VORSICHT** : LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET  
: NICHT DEM STRAHL AUSSETZEN!  
**ADVARSEL** : LASERSTRÅLING VED ÅBNING UDGÅ  
: UDSÆTTELSE FOR STRÅLING.  
**VARNING** : LASERSTRÅLNING NÄR DENNA DEL ÄR  
: ÖPPNAD BETRÄKTA EJ STRÅLEN.  
**VARO!** : AVATTAESSA ALTISTUT LASERSÄTEILYLLE.  
: ÄLÄ KATSO SÄTEESÄN.

VRW1697



## Additional Laser Caution

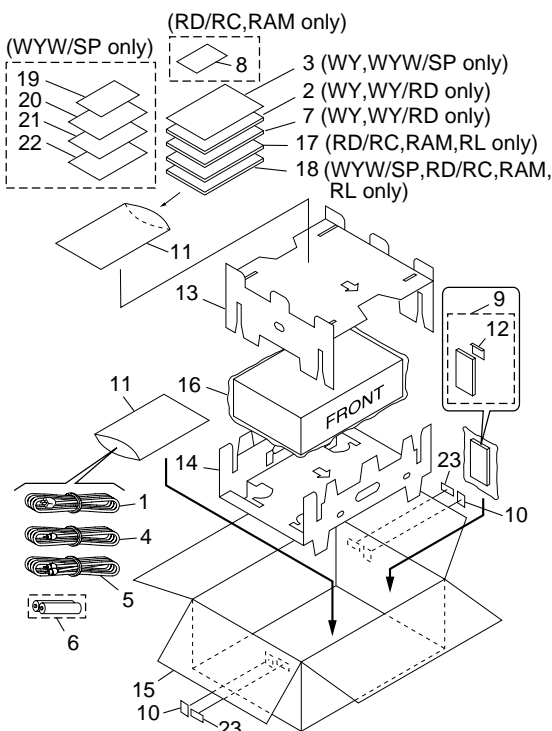
1. Inside detection switch (S201 on the INSB assy) and loading-status detection switch (S301 on the LOSB assy) are detected by the microprocessor (IC501 in the DVDM assy).  
• To permit the laser diode to oscillate, it is required to set the inside detection switch for the inside position (S201 : ON) and to set the loading-status detection switch for the clamp position (the center terminal of S301 is shorted to +5V). The laser diode oscillation will continue if pin 13 of IC101 is shorted to +5V (fault condition) in the DVDM assy.  
In the test mode \*, the laser diode oscillates when microprocessor detects a PLAY signal, or when the PLAY key is pressed (S107 ON in the FLKB assy), with the above requirements satisfied.
2. When the cover is open, close viewing through the objective lens with the naked eye will cause exposure to the laser beam.

\* : Refer to page 40.

## 2. EXPLODED VIEWS AND PARTS LIST

NOTES: ● Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.  
 ● The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.  
 ● Screws adjacent to ▼ mark on the product are used for disassembly.

### 2.1 PACKING



### (1) PACKING PARTS LIST

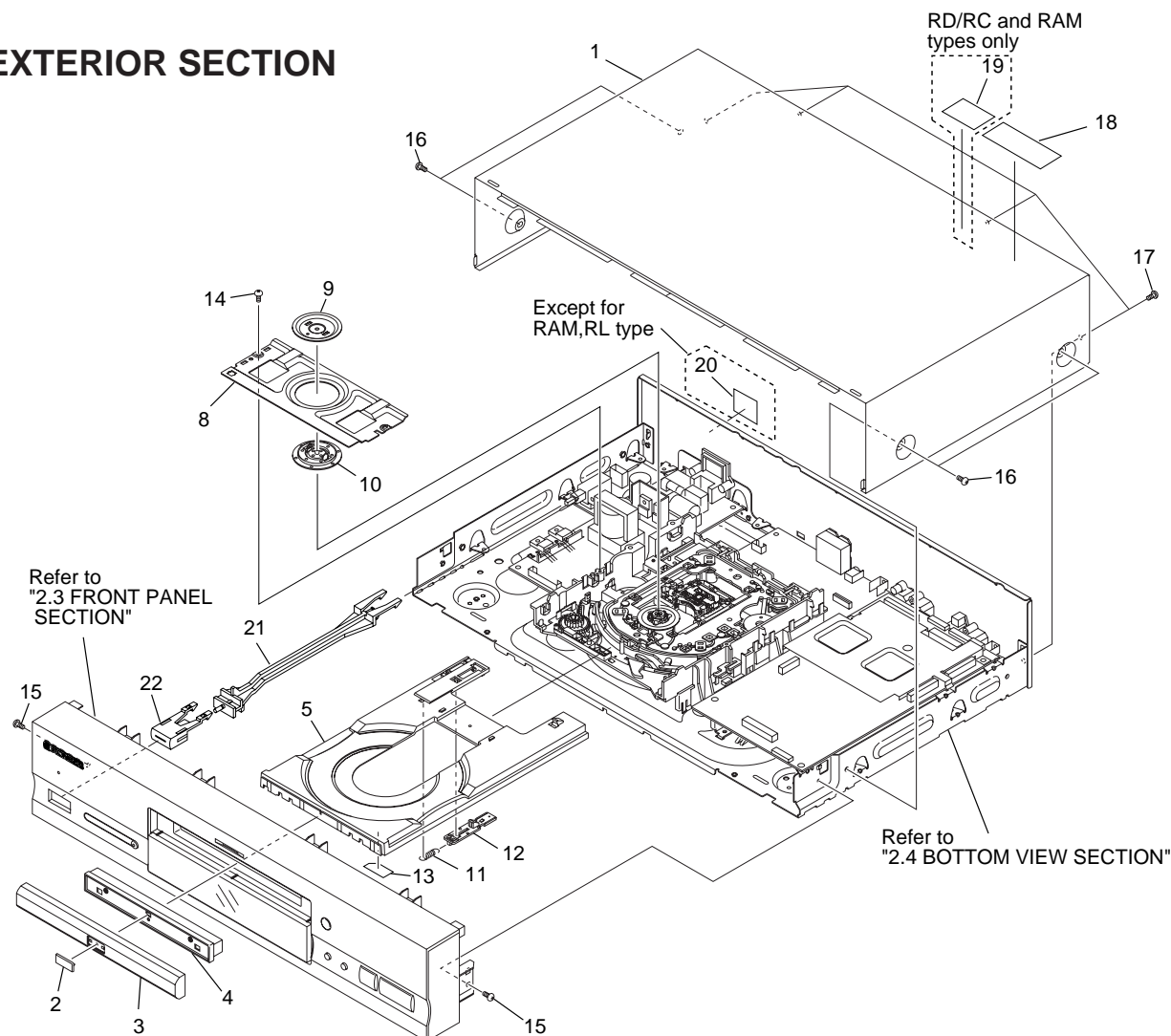
Mark	No.	Description	Part No.
$\Delta$	1	Power Cord	See Contrast table (2)
	2	Operating Instructions (English/French/German/Italian))	See Contrast table (2)
NSP	3	Warranty Card	See Contrast table (2)
	4	Audio Cord (L=1.5m)	VDE1033
	5	Video Cord (L=1.5m)	VDE1048
NSP	6	Dry Cell Battery (R6P, AA)	VEM-013
	7	Operating Instructions (Spanish/Portuguese/Dutch/Swedish)	See Contrast table (2)
	8	Card	See Contrast table (2)
	9	Remote Control Unit (CU-DV008)	VXX2540
	10	Label (Region)	See Contrast table (2)
	11	Polyethylene Bag	Z21-038
	12	Battery Cover	VNK3703
	13	Protector A	VHB1060
	14	Protector B	VHB1061
	15	Packing Case	See Contrast table (2)
	16	Mirror Mat Sheet	Z23-007
	17	Operating Instructions (English)	See Contrast table (2)
	18	Operating Instructions (Spanish)	See Contrast table (2)
NSP	19	Caution (EW)	See Contrast table (2)
NSP	20	Card (Information Center Tel. No.)	See Contrast table (2)
NSP	21	Card (Service Tel. List)	See Contrast table (2)
NSP	22	Card (Connection)	See Contrast table (2)
	23	Label (Model Type)	See Contrast table (2)

### (2) CONTRAST TABLE

WY, WY/RD, WYW/SP, RD/RC, RAM and RL types are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			WY type	WY/RD type	WYW/SP type	RD/RC type	RAM type	RL type	
$\Delta$ NSP	1	Power Cord	ADG1154	ADG1127	ADG1127	ADG7003	ADG7017	ADG1154	
	2	Operating Instructions (English/French/German/Italian)	VRE1068	VRE1068	Not used	Not used	Not used	Not used	
	3	Warranty Card	ARY7008	Not used	ARY7008	Not used	Not used	Not used	
	7	Operating Instructions (Spanish/Portuguese/Dutch/Swedish)	VRF1042	VRF1042	Not used	Not used	Not used	Not used	
	8	Card	Not used	Not used	Not used	VR1110	VR1109	Not used	
	10	Label (Region)	VRW1701	VRW1705	VRW1701	VRW1702	Not used	VRW1702	
NSP	15	Packing Case	VHG1718	VHG1718	VHG1736	VHG1717	VHG1743	VHG1717	
	17	Operating Instructions (English)	Not used	Not used	Not used	VRB1192	VRB1192	VRB1192	
	18	Operating Instructions (Spanish)	Not used	Not used	VRC1065	Not used	Not used	Not used	
	18	Operating Instructions (Trad-chinese)	Not used	Not used	Not used	VRC1063	Not used	VRC1063	
	18	Operating Instructions (Simp-chinese)	Not used	Not used	Not used	Not used	VRC1061	Not used	
	19	Caution (EW)	Not used	Not used	VRM1027	Not used	Not used	Not used	
NSP	20	Card (Information Center Tel. No.)	Not used	Not used	VRR1023	Not used	Not used	Not used	
NSP	21	Card (Service Tel. List)	Not used	Not used	VRR1034	Not used	Not used	Not used	
NSP	22	Card (Connection)	Not used	Not used	VRR1033	Not used	Not used	Not used	
	23	Label (Model Type)	Not used	VRW1713	Not used	VRW1710	Not used	Not used	

## 2.2 EXTERIOR SECTION



### (1) EXTERIOR SECTION PARTS LIST

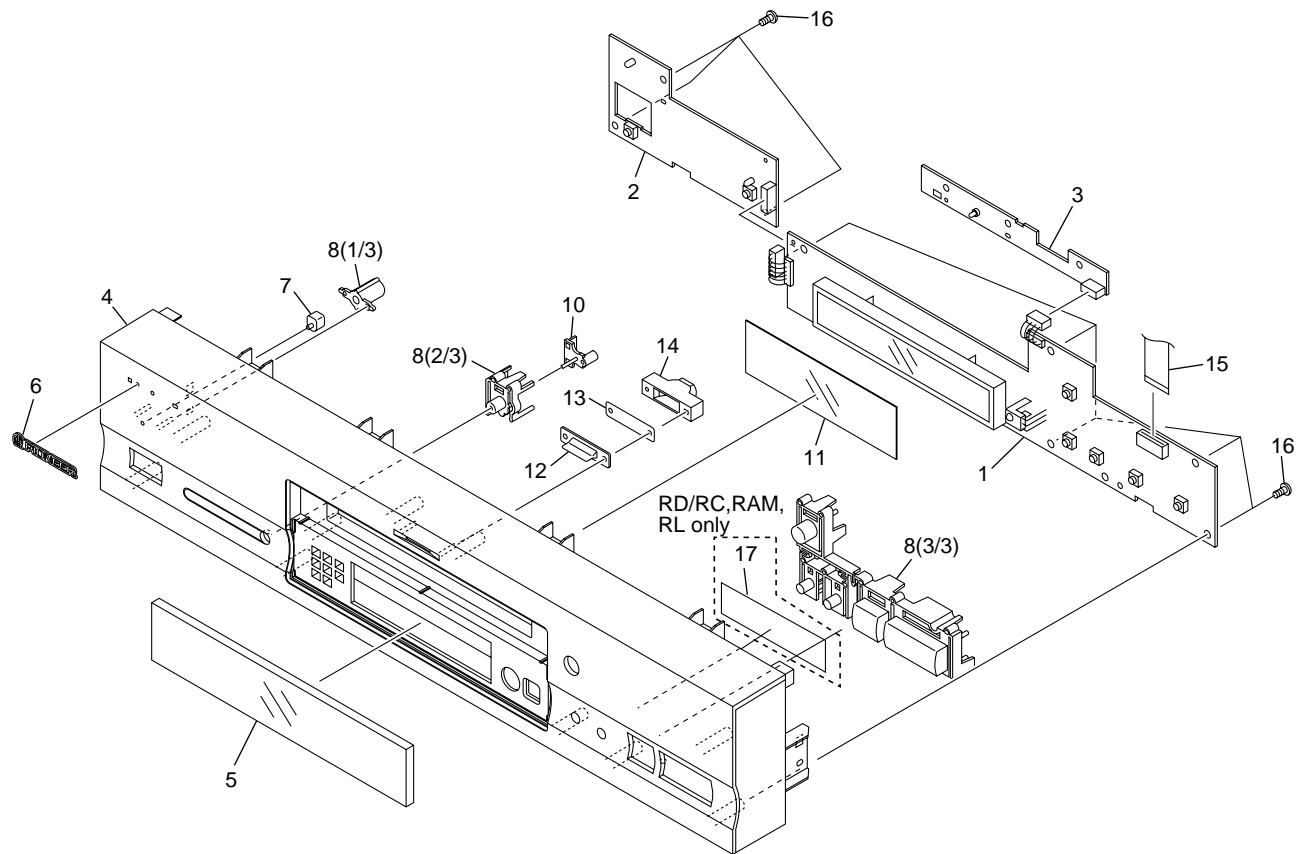
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Bonnet Case S	See Contrast table (2)		12	Tray Stopper	VNL1739
	2	DVD Plate	VAM1075		13	Tray Label	VRW1628
	3	Tray Panel Plate	See Contrast table (2)		14	Screw	BPZ26P080FZK
	4	Tray Panel	VNK4158		15	Screw	IBZ30P080FMC
	5	Tray	VNL1731		16	Screw	See Contrast table (2)
	6	•••••			17	Screw	BBZ30P080FMC
	7	•••••			18	Caution Label	VRW1697
	8	Bridge	VNE2069	NSP	19	Caution Label (F)	See Contrast table (2)
	9	Clamper Plate	VNE2068		20	Label (Region)	See Contrast table (2)
	10	Clamper	VNL1738		21	Power Button Joint	VNK4179
	11	Tray Stopper Spring	VBH1277		22	Power Button	See Contrast table (2)

### (2) CONTRAST TABLE

WY, WY/RD, WYW/SP, RD/RC, RAM and RL types are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			WY type	WY/RD type	WYW/SP type	RD/RC type	RAM type	RL type	
NSP	1	Bonnet Case S	VXX2566	VXX2566	VXX2566	VXX2539	VXX2539	VXX2539	
	3	Tray Panel Plate	VNK4094	VNK4094	VNK4094	VNK4093	VNK4093	VNK4093	
	16	Screw	BCZ40P060FZK	BCZ40P060FZK	BCZ40P060FZK	BCZ40P060FNI	BCZ40P060FNI	BCZ40P060FNI	
	19	Caution Label (F)	Not used	Not used	Not used	VRW-328	VRW-328	Not used	
	20	Label (Region)	VRW1700	VRW1704	VRW1700	VRW1703	Not used	Not used	
	22	Power Button	VNK4184	VNK4184	VNK4184	VNK4159	VNK4159	VNK4159	

2.3 FRONT PANEL SECTION



(1) FRONT PANEL SECTION PARTS LIST

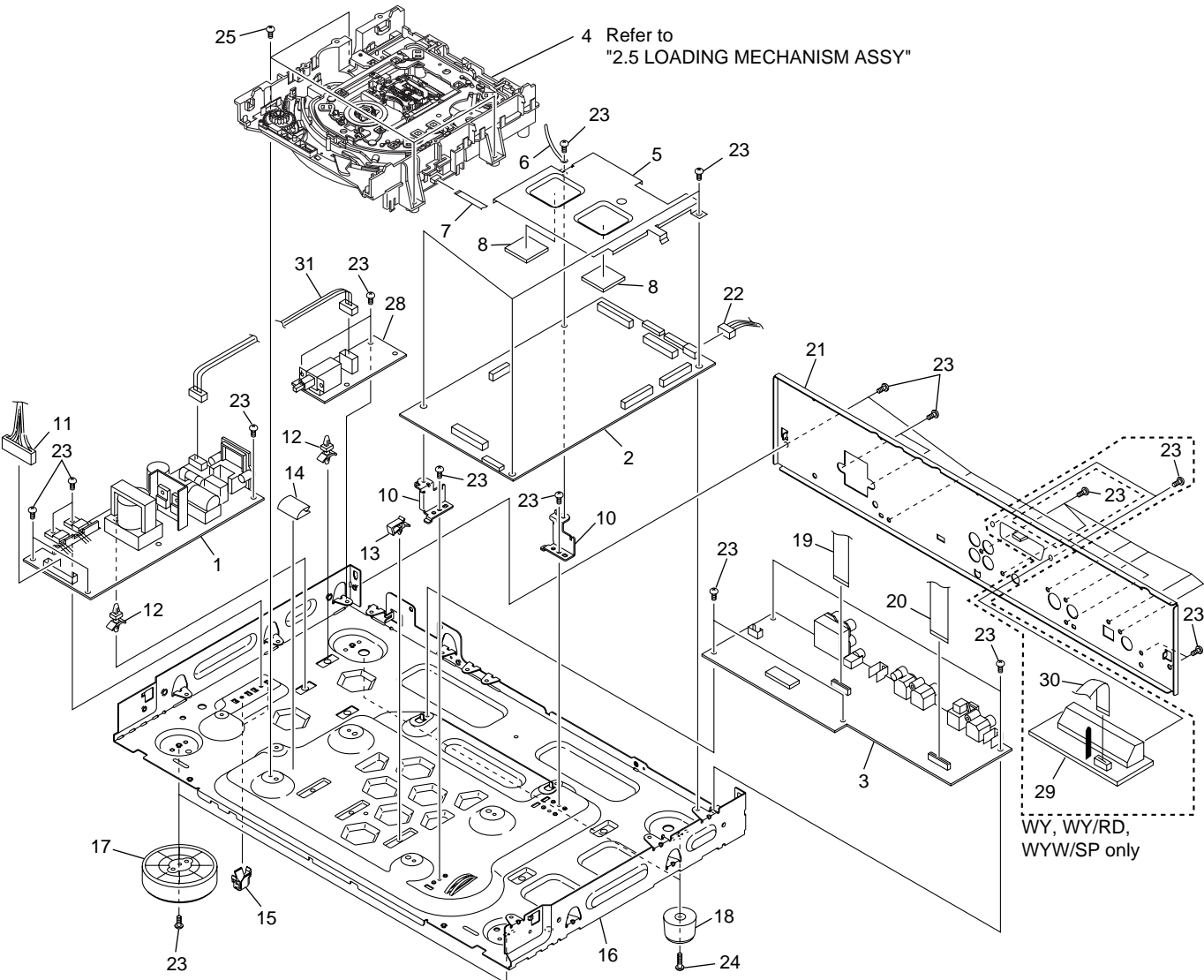
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	FLKB Assy	See Contrast table (2)		11	FL Filter	VEC1643
NSP	2	PWSB Assy	See Contrast table (2)		12	Illumination Lens	VNK4168
	3	DILB Assy	VWG1881		13	Illumination Filter	VEC1950
	4	Front Panel	See Contrast table (2)		14	Illumination Holder	VNK4098
	5	FL Lens	See Contrast table (2)		15	Flexible Cable (14P) (FLKB CN101 – DVDM CN105)	VDA1646
	6	Name Plate	See Contrast table (2)		16	Screw	BBZ30P080FMC
	7	LED Lens	PNW2019	NSP	17	Getter	See Contrast table (2)
	8	Main Key	See Contrast table (2)				
	9	•••••					
	10	PLAY Lens	RNK2232				

(2) CONTRAST TABLE

WY, WY/RD, WYW/SP, RD/RC, RAM and RL types are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			WY type	WY/RD type	WYW/SP type	RD/RC type	RAM type	RL type	
NSP	1	FLKB Assy	VWG1876	VWG1876	VWG1876	VWG1940	VWG1934	VWG1875	
	2	PWSB Assy	VWG1937	VWG1937	VWG1937	VWG1880	VWG1880	VWG1880	
	4	Front Panel	VNK4206	VNK4206	VNK4206	VNK4205	VNK4205	VNK4205	
	5	FL Lens	VNK4149	VNK4149	VNK4149	VNK4099	VNK4099	VNK4099	
	6	Name Plate	VAM1073	VAM1073	VAM1073	VAM1067	VAM1067	VAM1067	
NSP	8	Main Key	VNK4096	VNK4096	VNK4096	VNK4095	VNK4095	VNK4095	
	17	Getter	Not used	Not used	Not used	VRW1692	VRW1692	VRW1692	

2.4 BOTTOM VIEW SECTION



**(1) BOTTOM VIEW SECTION PARTS LIST**

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
△	1	POWER SUPPLY Assy	VWR1285	NSP	16	Chassis	VNA1876
	2	DVDM Assy	VWS1326		17	Insulator	PNW2766
	3	AVJB Assy	See Contrast table (2)		18	Insulator Assy	VXA1680
NSP	4	Loading Mechanism Assy	VWT1147		19	Flexible Cable (14P) (AVJB CN191 – DVDM CN803)	VDA1646
	5	Heat Sink	VNE2134		20	Flexible Cable (17P) (AVJB CN901 – DVDM CN802)	VDA1650
NSP	6	Cord Stopper	ZCB-069Z		21	Rear Panel	See Contrast table (2)
	7	Flexible Cable (12P) (LOSB CN301 – DVDM CN107)	VDA1648		22	Housing Assy (4P) (DVDM CN801 – AVJB CN301)	VKP2157
	8	Radiation Seat	VEB1282		23	Screw	BBZ30P080FMC
	9	•••••			24	Screw	BBZ30P180FMC
NSP	10	PCB Holder	VNE2122		25	Screw	BBZ30P100FMC
	11	Housing Assy (14P) (POWER SUPPLY CN201 – DVDM CN101)	VKP2161		26	•••••	
NSP	12	PCB Holder	PNW2100		27	•••••	
	13	Clamp	DEC2007		28	MSWB Assy	VWG1882
	14	Shell Clip	DEC1184		29	SCCB Assy	See Contrast table (2)
	15	Guard	VNK4100		30	Flexible Cable (8P) (SCCB CN100 – AVJB CN19)	See Contrast table (2)
				NSP	31	Housing Assy (2P) (POWER SUPPLY CN102 – MSWB CN10)	VKP2160

**(2) CONTRAST TABLE**

WY, WY/RD, WYW/SP, RD/RC, RAM and RL types are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			WY type	WY/RD type	WYW/SP type	RD/RC type	RAM type	RL type	
	3	AVJB Assy	VWV1575	VWV1575	VWV1575	VWV1574	VWV1574	VWV1574	
	21	Rear Panel	VNA1905	VNA1905	VNA1905	VNA1953	VNA1906	VNA1904	
	29	SCCB Assy	VWV1577	VWV1577	VWV1577	Not used	Not used	Not used	
	30	Flexible Cable (8P)	VDA1651	VDA1651	VDA1651	Not used	Not used	Not used	



2.5 LOADING MECHANISM ASSY

• Top View

Refer to  
"2.6 SERVO MECHANISM  
ASSY"

1 2 3 4 5 6 10 20

• Bottom View

7 8 9 10 11 12 13 14 15 16 17 18

• LOADING MECHANISM ASSY PARTS LIST

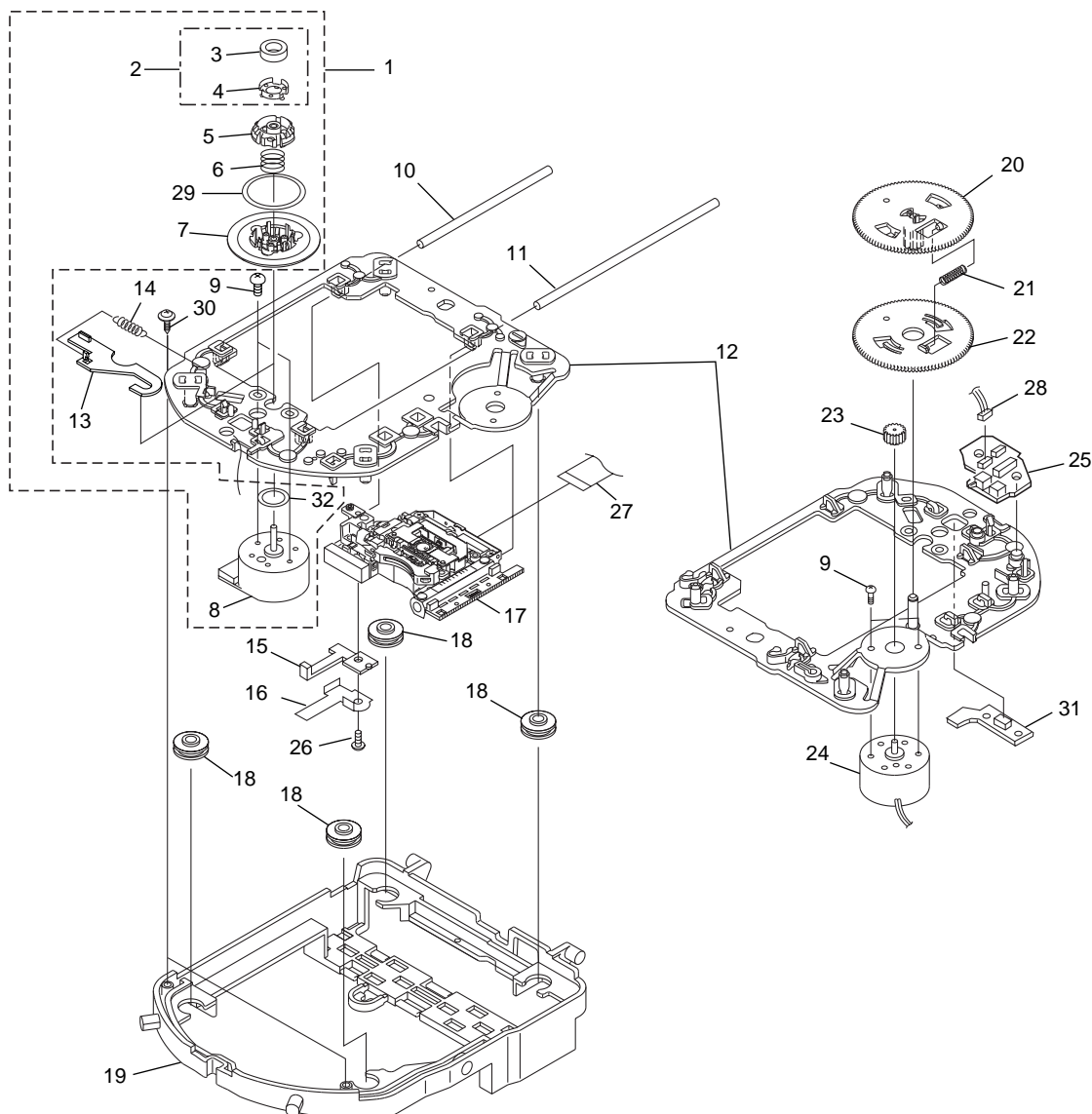
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Servo Mechanism Assy-S	VXX2538		11	Loading Motor Assy	VXX2505
	2	Screw	DBA1006		12	DC Motor	PXM1027
	3	Drive Cam	VNL1736		13	Motor Pulley	PNW1634
	4	Drive Gear	VNL1735	NSP	14	LOMB Assy	VWG1886
	5	Lock Plate	VNL1737		15	Connector Assy (2P) (LOMB CN401 – LOSB CN303)	PG02KK-E35
	6	Loading Base	VNL1730		16	Screw	VBA1055
	7	Rubber Belt	VEB1260		17	Screw	Z39-019
	8	Gear Pulley	VNL1733		18	Flexible Cable (8P) (LOSB CN302 – INSB CN202)	VDA1649
NSP	9	LOSB Assy	VWG1885		19	•••••	
	10	Loading Gear	VNL1734		20	Stopper	DNH2076



## 2.6 SERVO MECHANISM ASSY

• Top View

• Bottom View

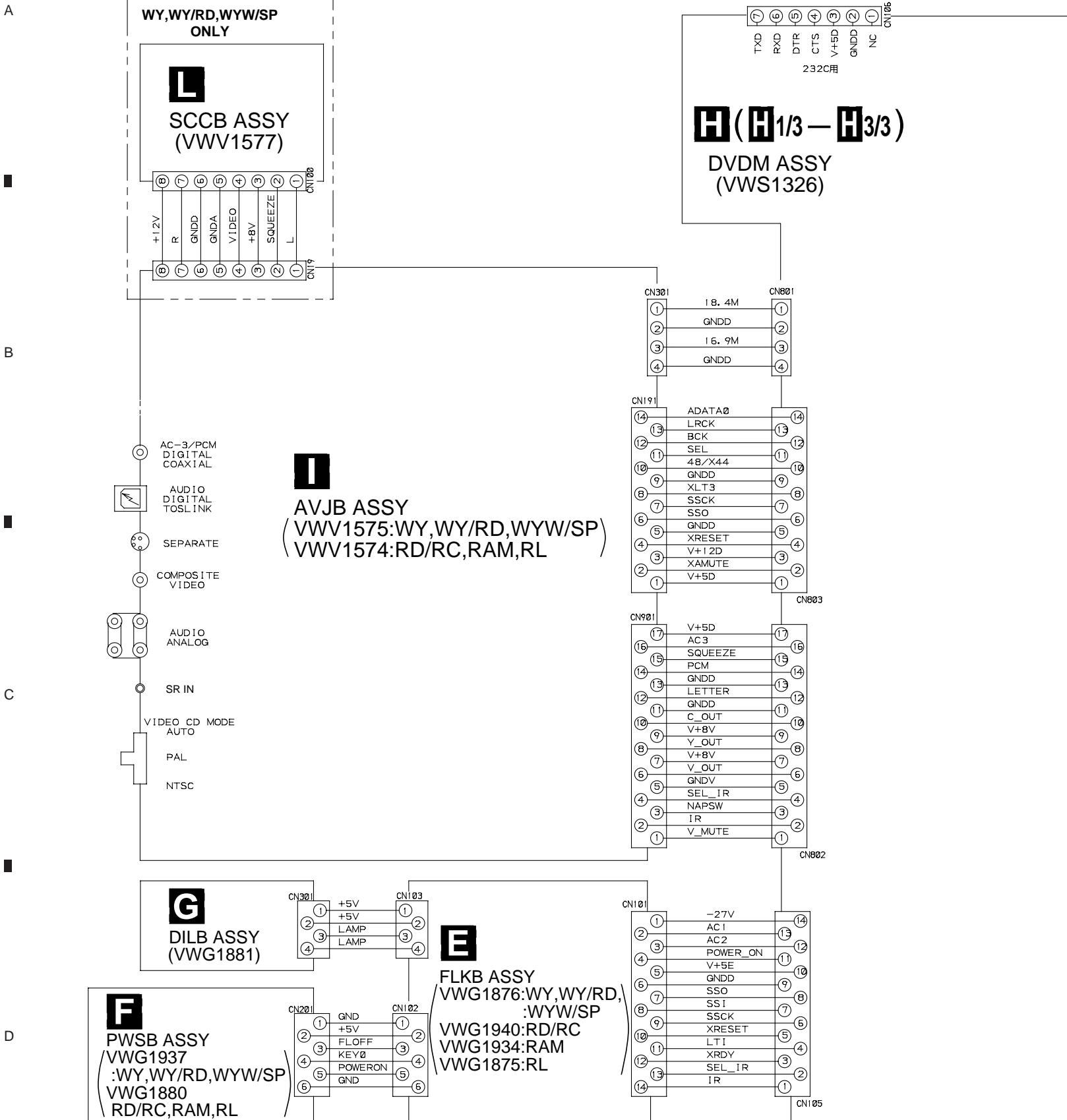


### • SERVO MECHANISM ASSY PARTS LIST

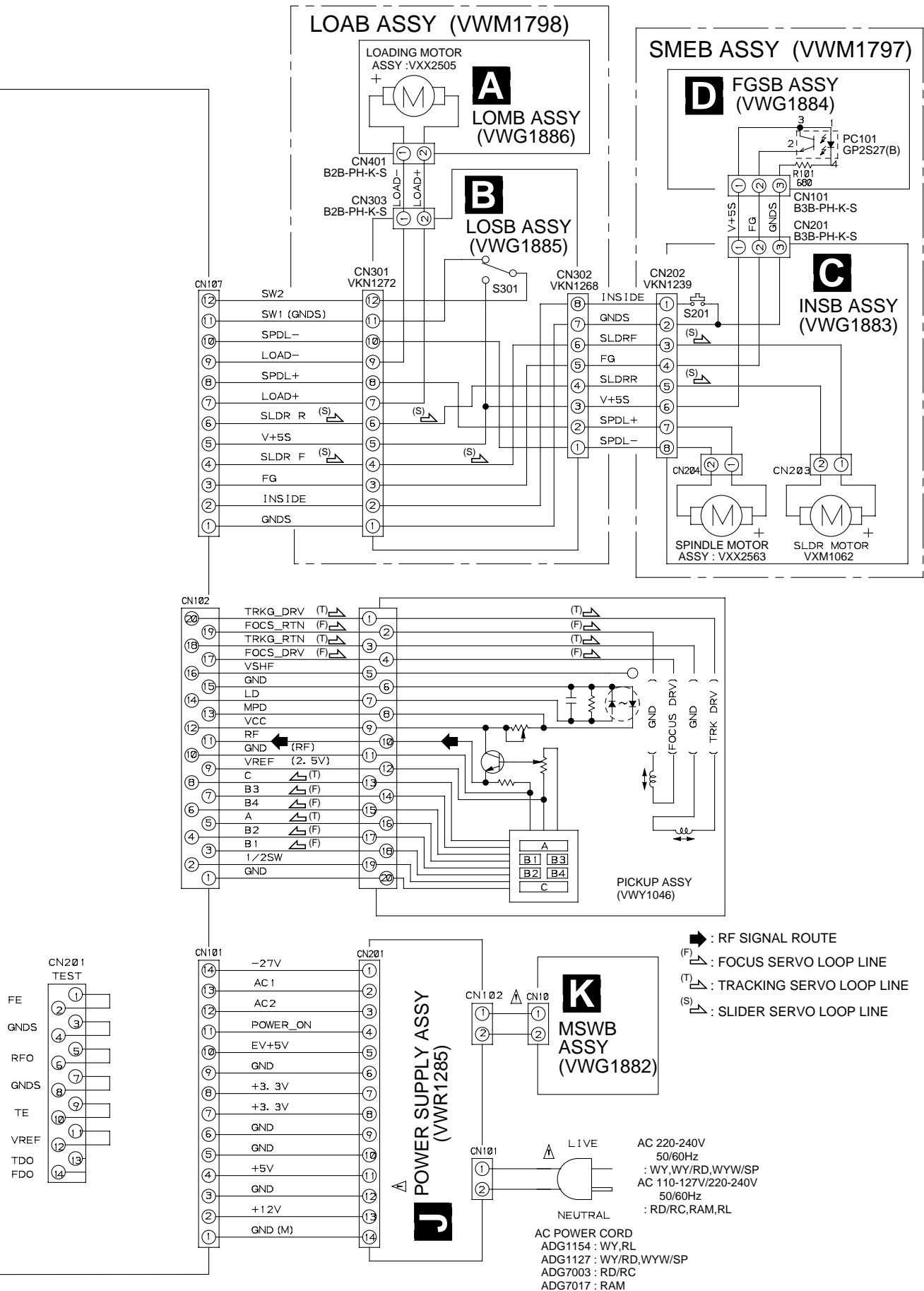
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Spindle Motor Assy	VXX2563		18	Floating Rubber	DEB1315
	2	Magnet Holder Assy	VXX2507		19	Float Base	VNL1732
NSP	3	Magnet	VYM1024		20	Gear D	VNL1766
NSP	4	Magnet Holder	VNE2070		21	Gear Spring	VBH1279
	5	Centering Ring	VNL1746		22	Gear E	VNL1767
	6	Centering Spring	VBH1278		23	Gear F	VNL1768
NSP	7	Disc Table	VNL1747		24	Motor	VXM1062
NSP	8	Motor	VXM1071	NSP	25	INSB Assy	VWG1883
	9	Screw	JGZ17P028FMC		26	Screw	PBZ20P050FMC
	10	Sub Guide Bar	VLL1489		27	Flexible Cable (20P) (DVDM CN102 – Pickup Assy)	VDA1680
	11	Guide Bar	VLL1488		28	Connector Assy (3P) (INSB CN201 – FGSB CN101)	VKP2150
	12	Mechanism Base	VNL1748		29	Table Sheet	DEC2040
	13	Hook	VNL1770		30	Screw	PBA1048
	14	Hook Spring	VBH1291	NSP	31	FGSB Assy	VWG1884
	15	Slider	VNL1745	NSP	32	Sheet	VEC1959
	16	HOLD SPRING	VNC1011				
NSP	17	Pickup Assy	VWY1046				

### 3. SCHEMATIC DIAGRAM

#### 3.1 OVERALL CONNECTION DIAGRAM, LOMB, LOSB, INSB AND FGSB ASSEMBLIES



Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



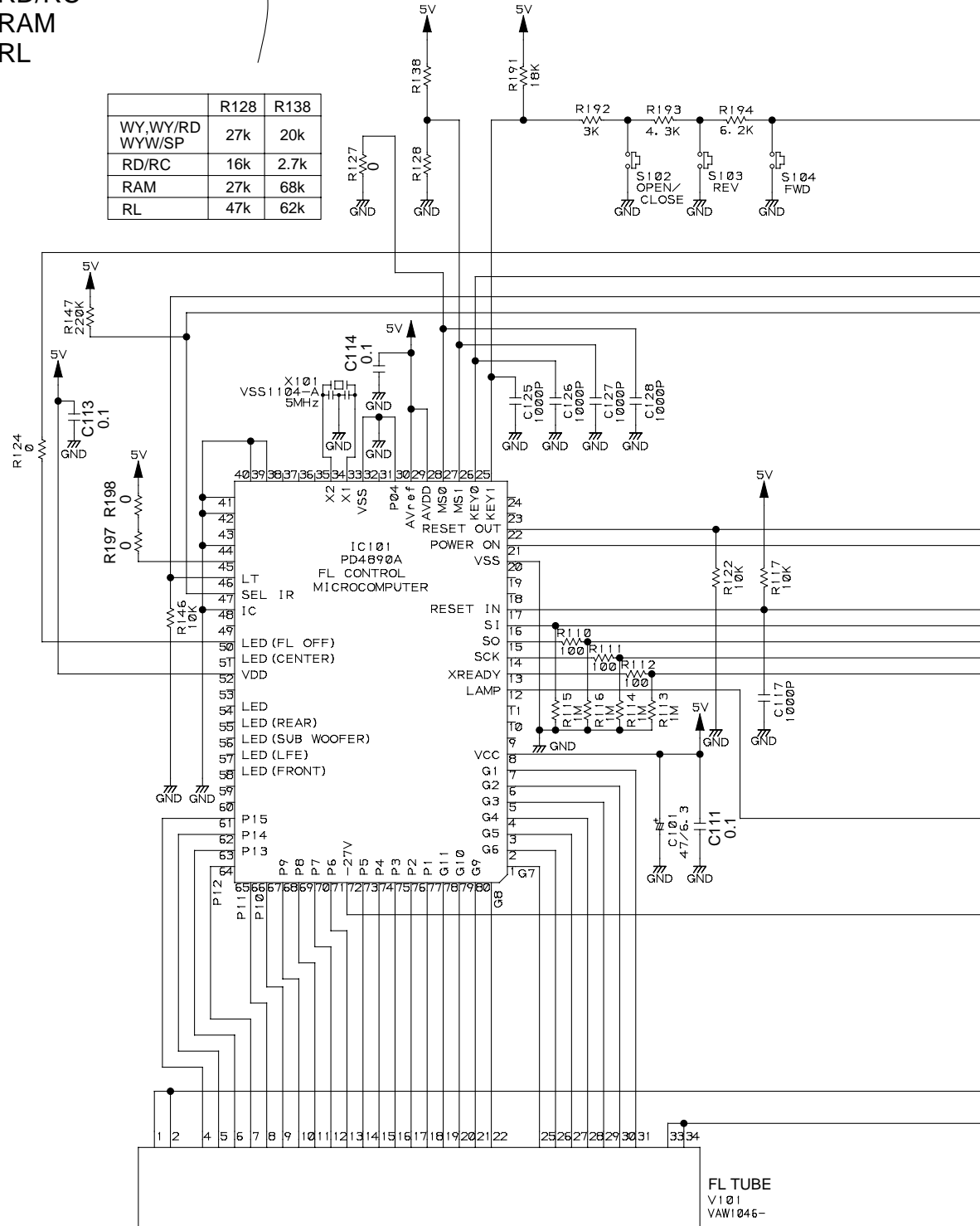
### 3.2 FLKB, PWSB AND DILB ASSEMBLIES

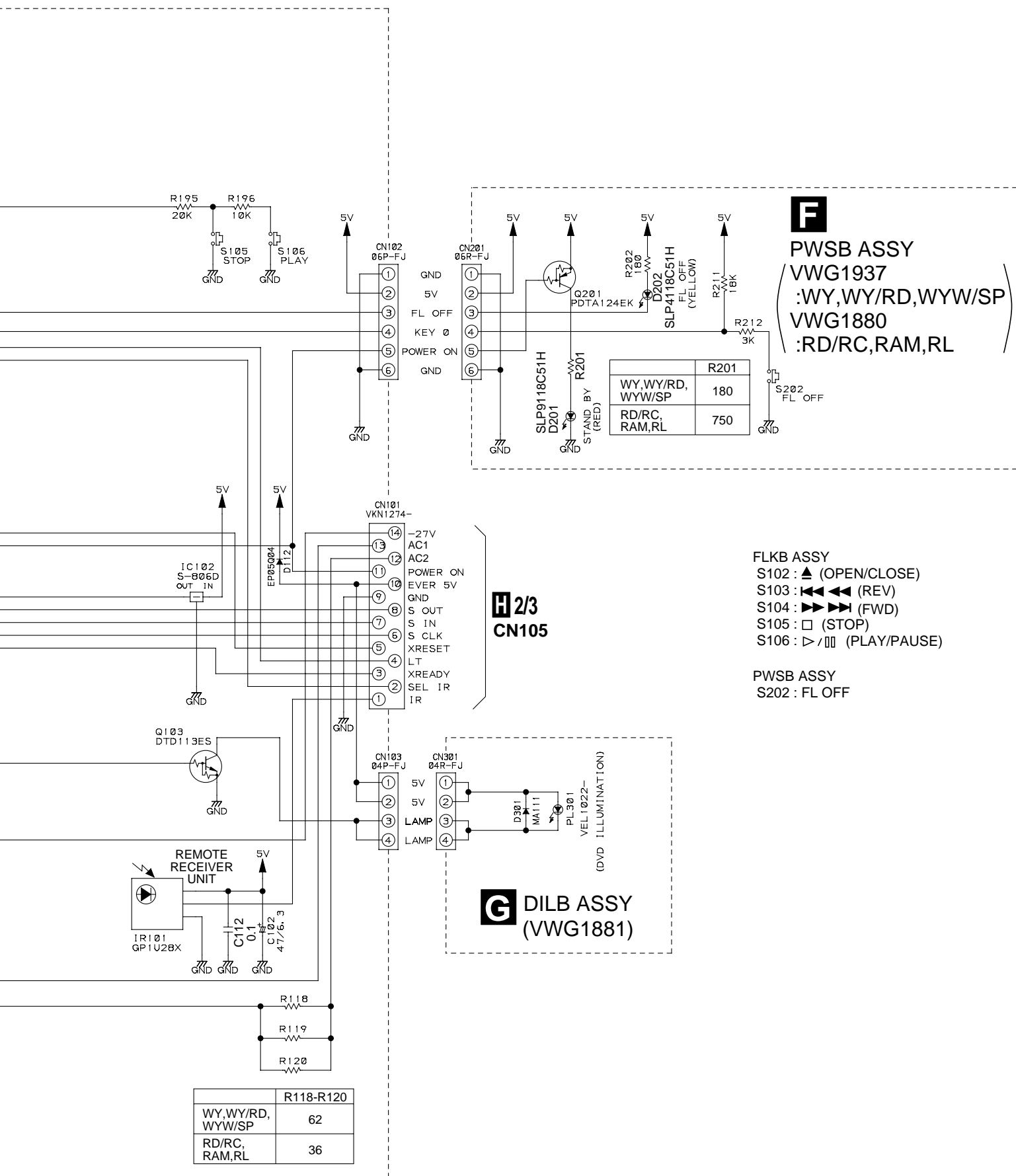


FLKB ASSY

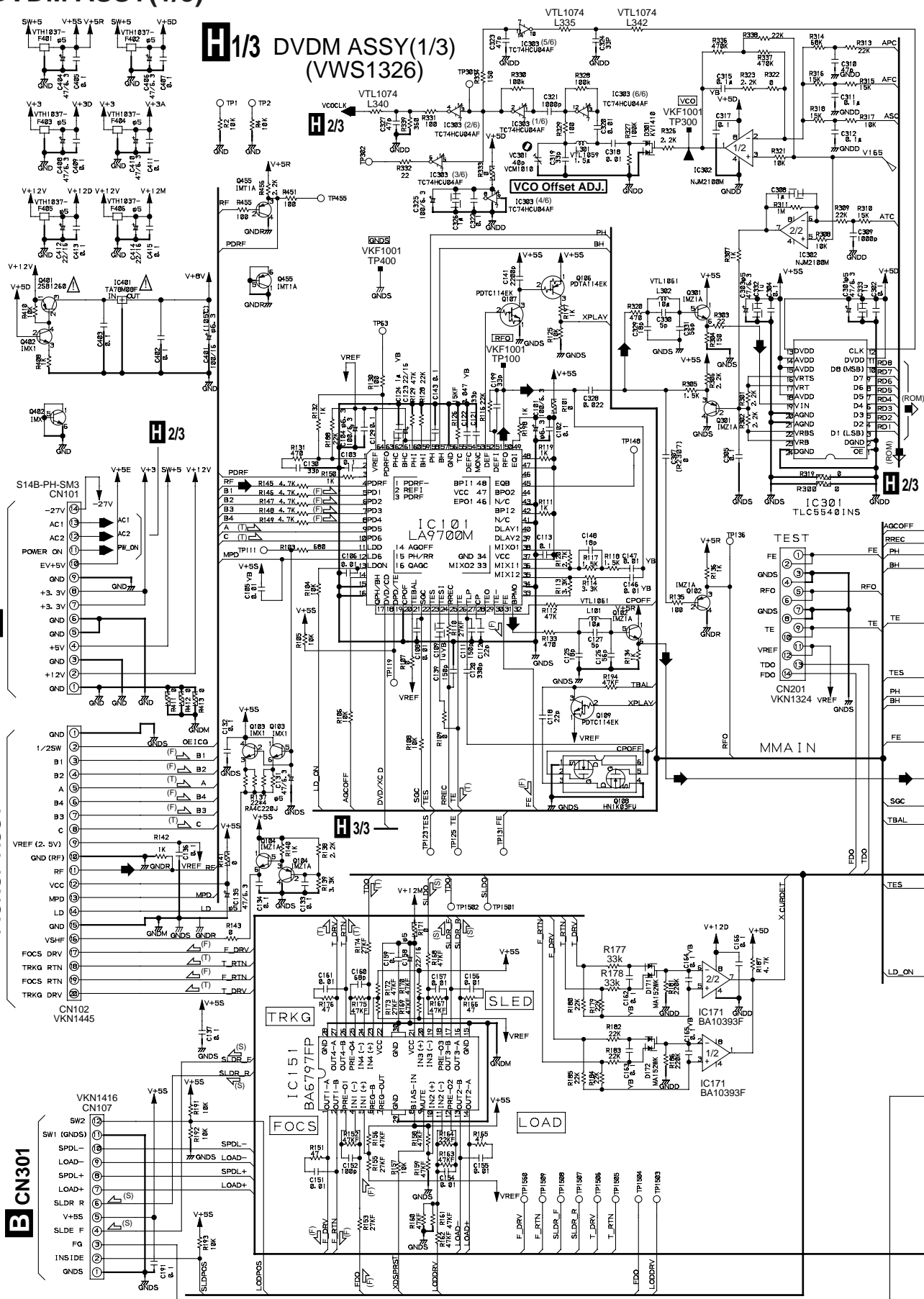
(VWG1876 :WY,WY/RD,WYW/SP  
VWG1940 :RD/RC  
VWG1934 :RAM  
VWG1875 :RL

	R128	R138
WY,WY/RD WYW/SP	27k	20k
RD/RC	16k	2.7k
RAM	27k	68k
RL	47k	62k





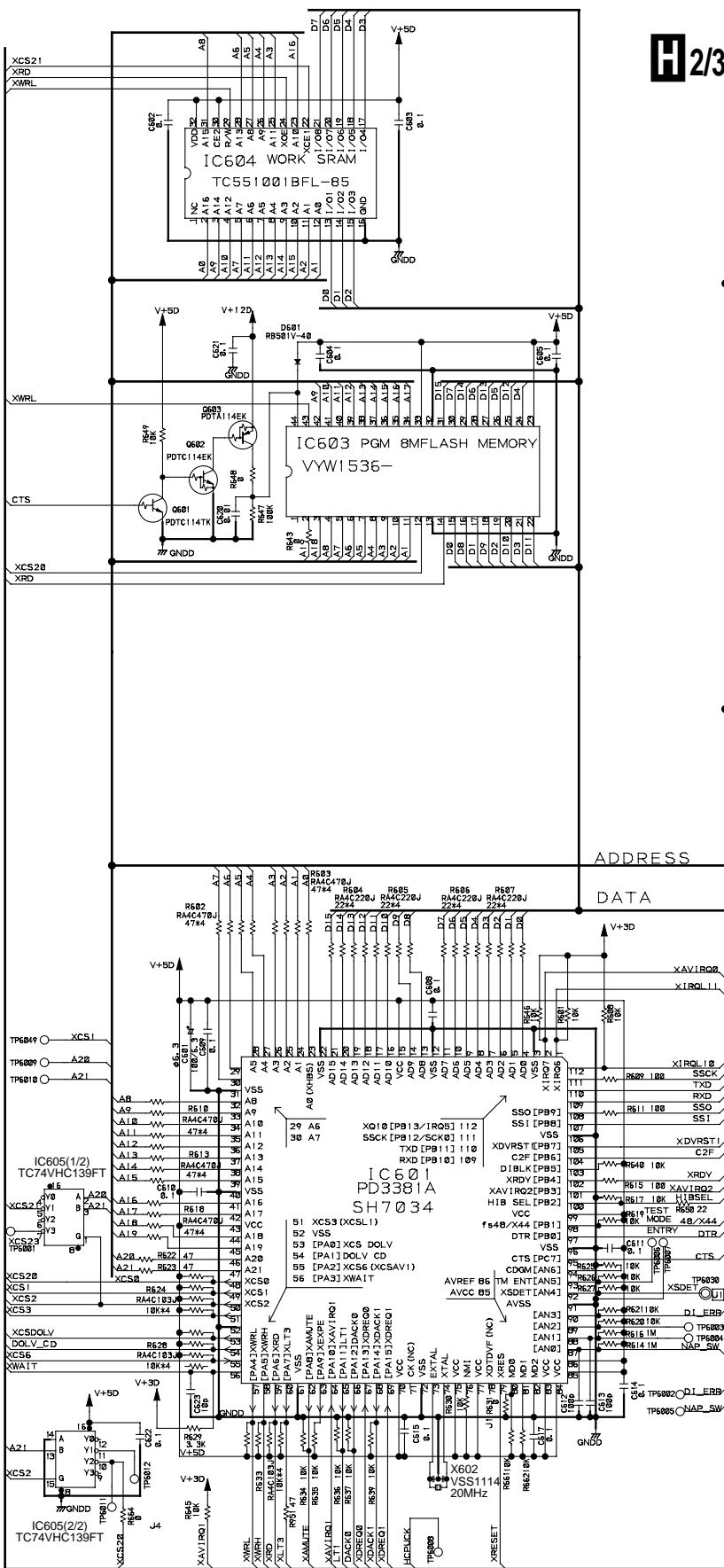
### 3.3 DVDM ASSY(1/3)



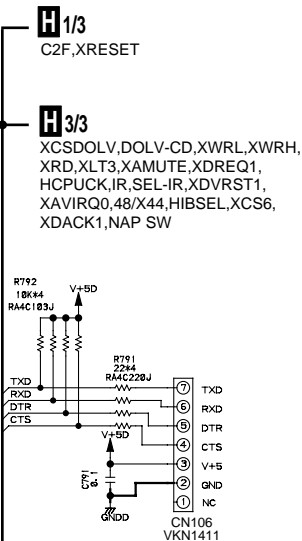




### 3.4 DVDM ASSY(2/3)



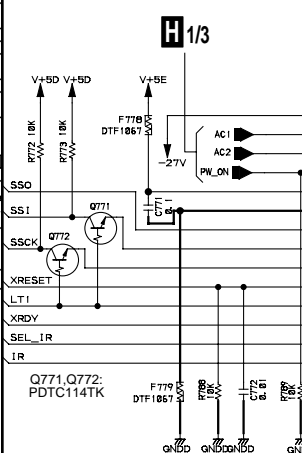
## H2/3 DVDM ASSY(2/3) (VWS1326)



MAIN

**H<sub>3/3</sub>**  
ADDRESS  
A2-A10

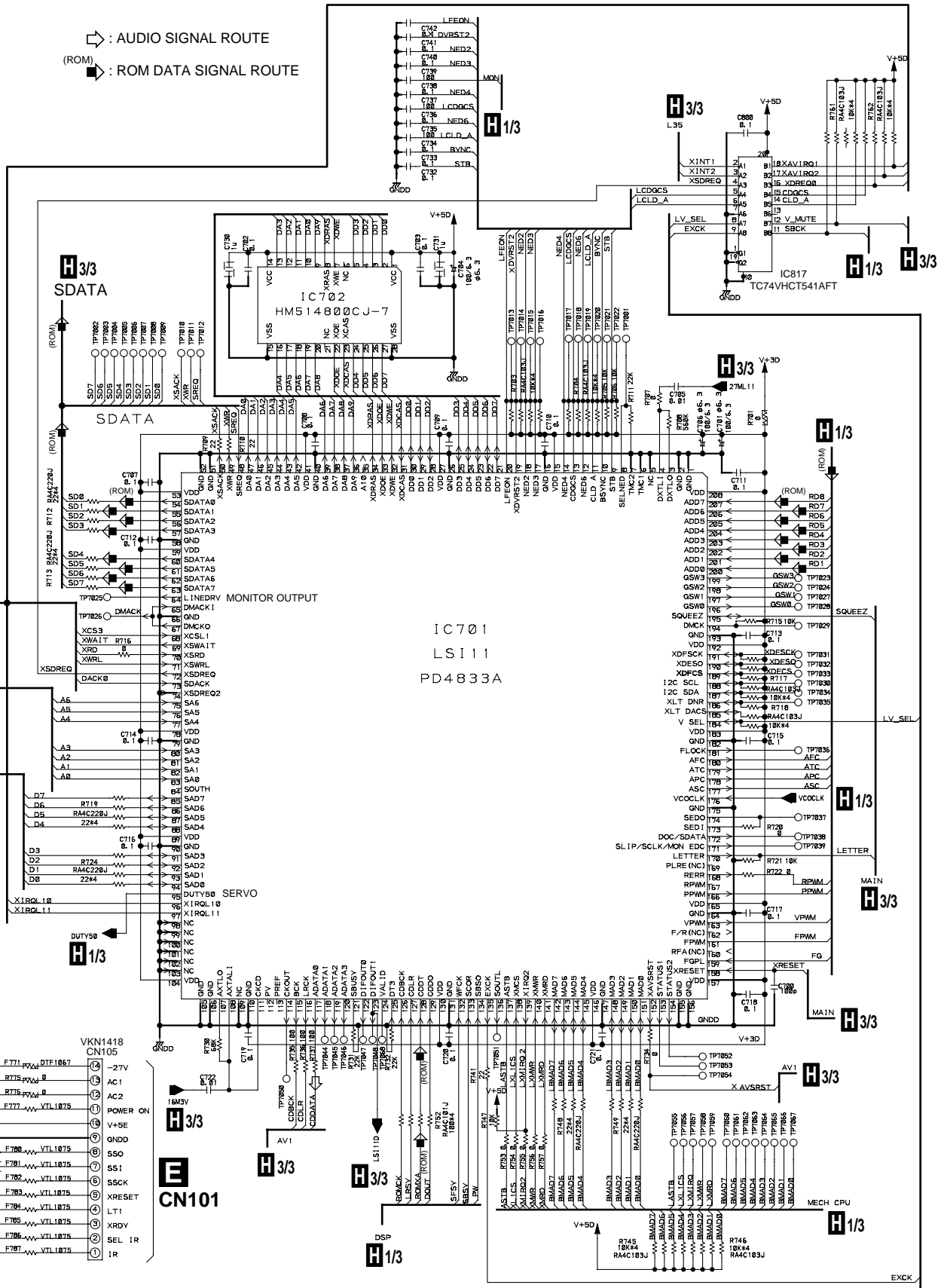
**H<sub>3/3</sub>**  
DATA



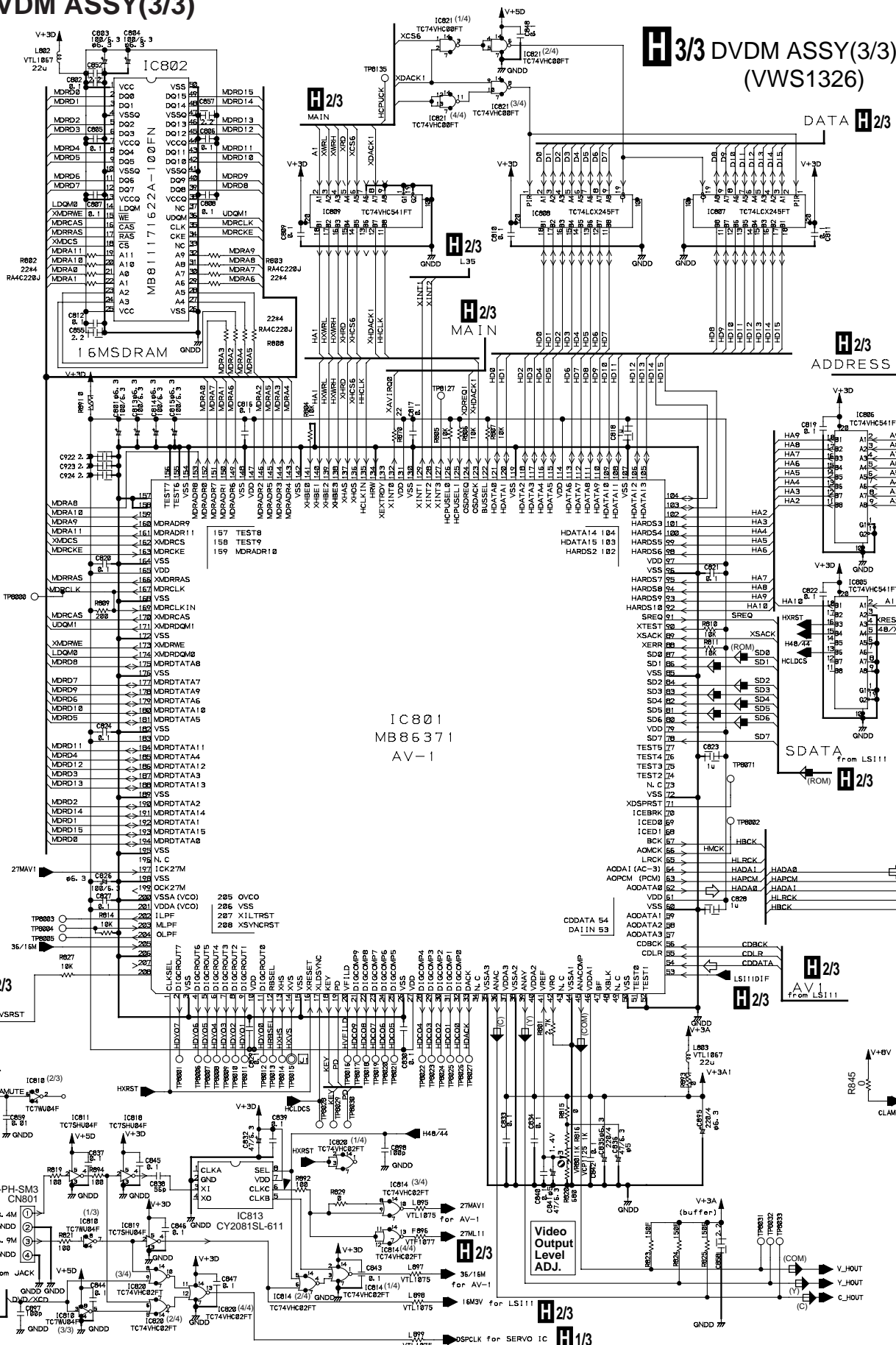
Q771,Q772:  
PDTC114TK

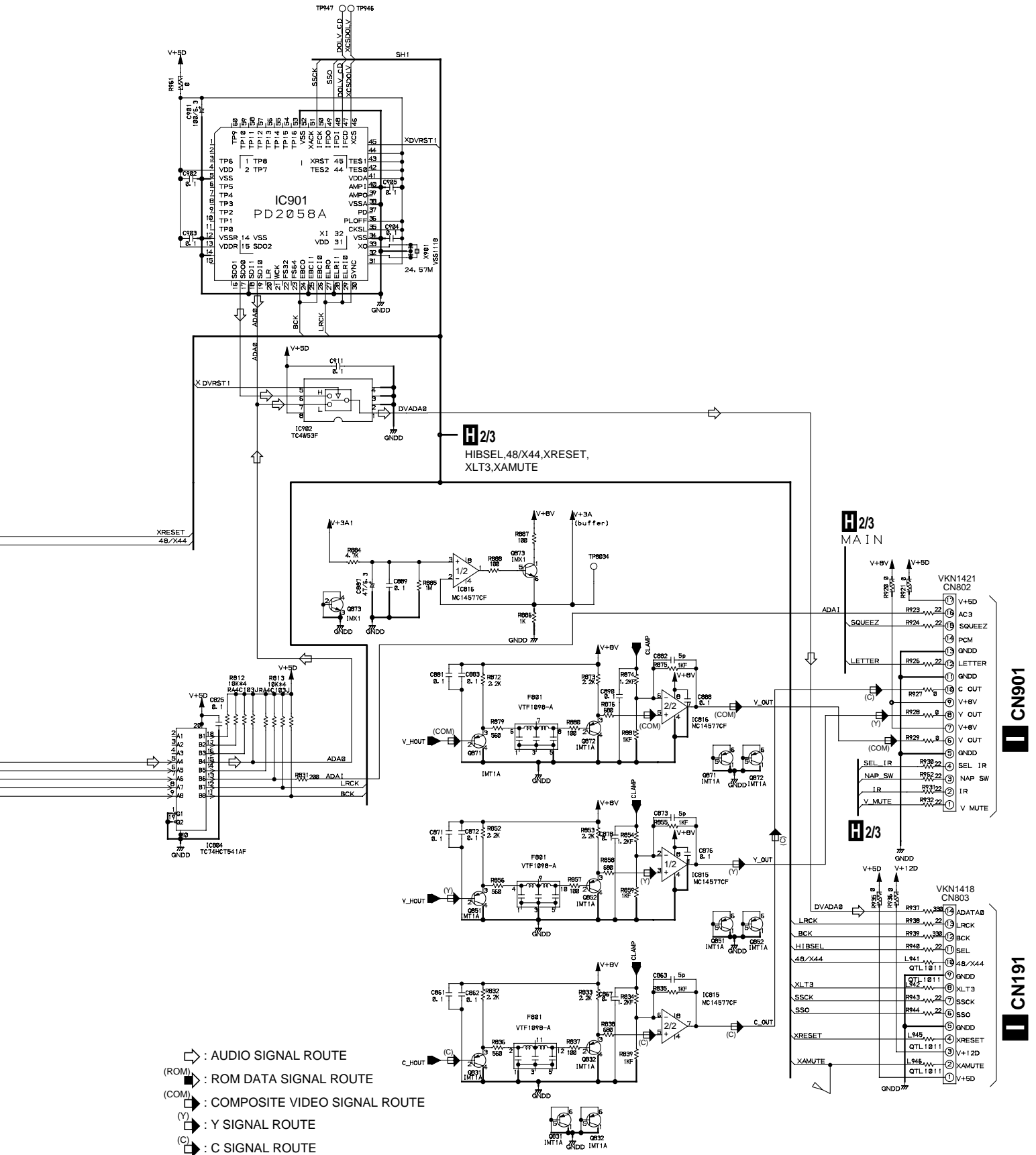


↗ : AUDIO SIGNAL ROUTE  
 (ROM) : ROM DATA SIGNAL ROUTE

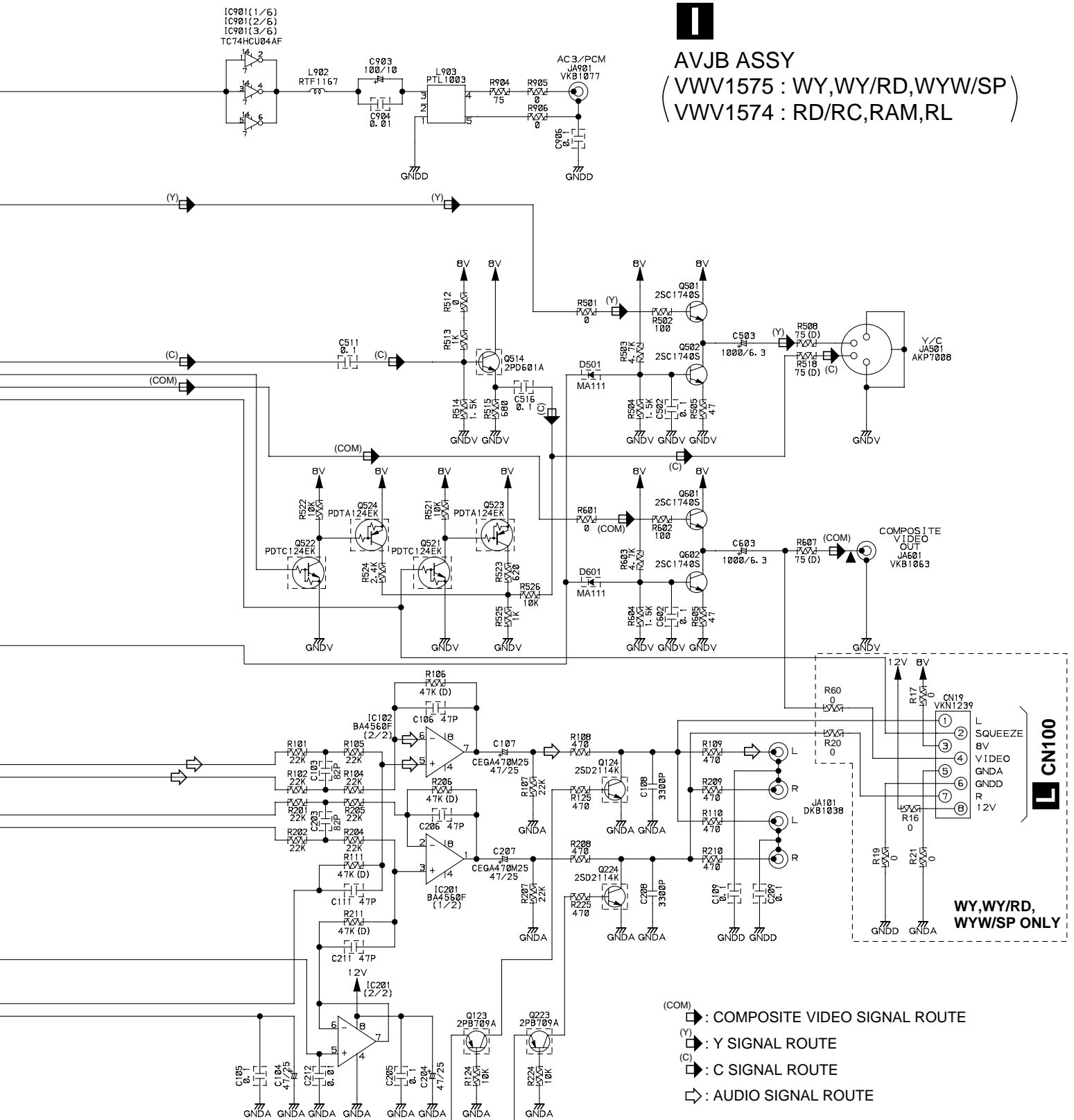


### 3.5 DVDM ASSY(3/3)





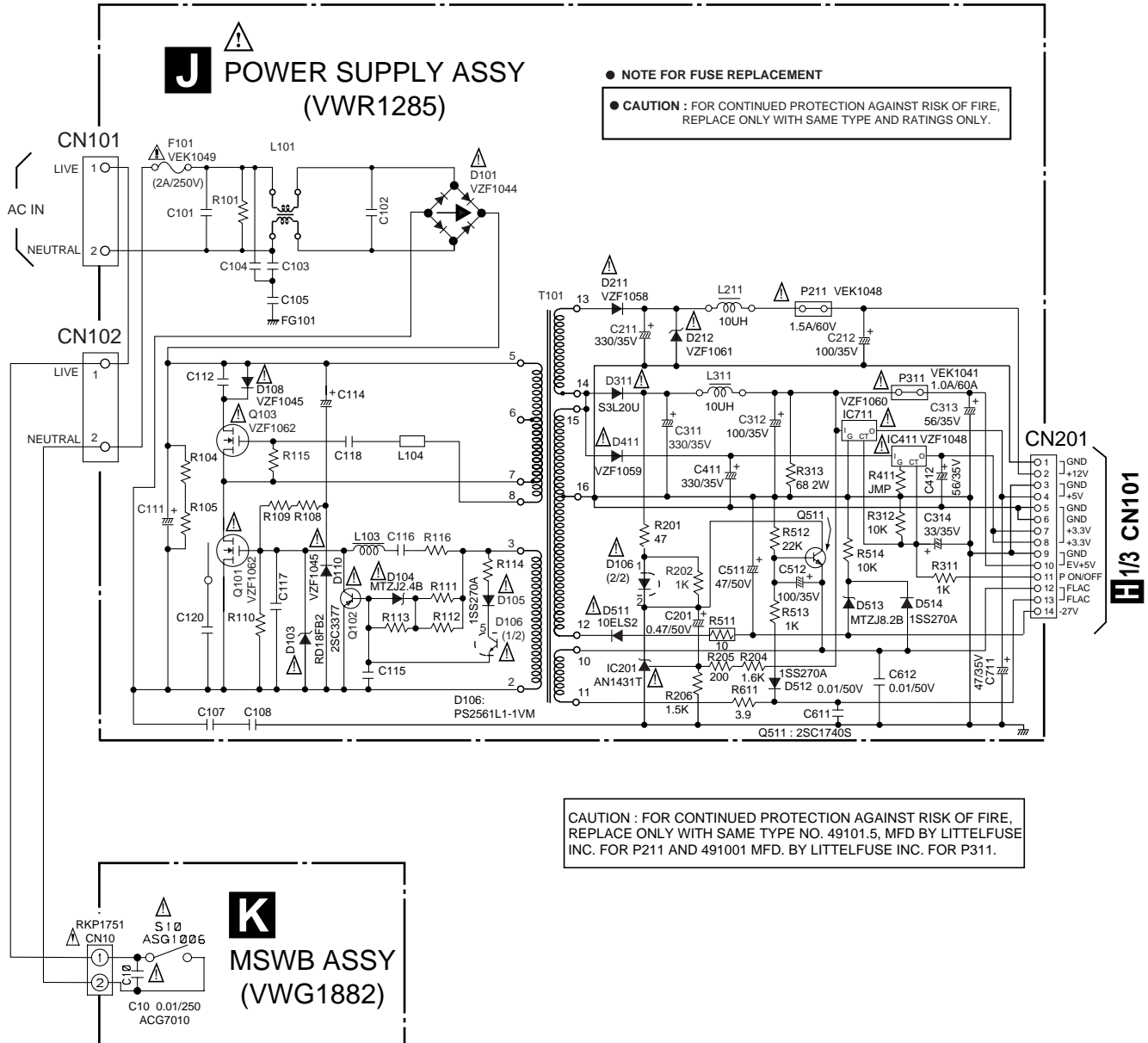




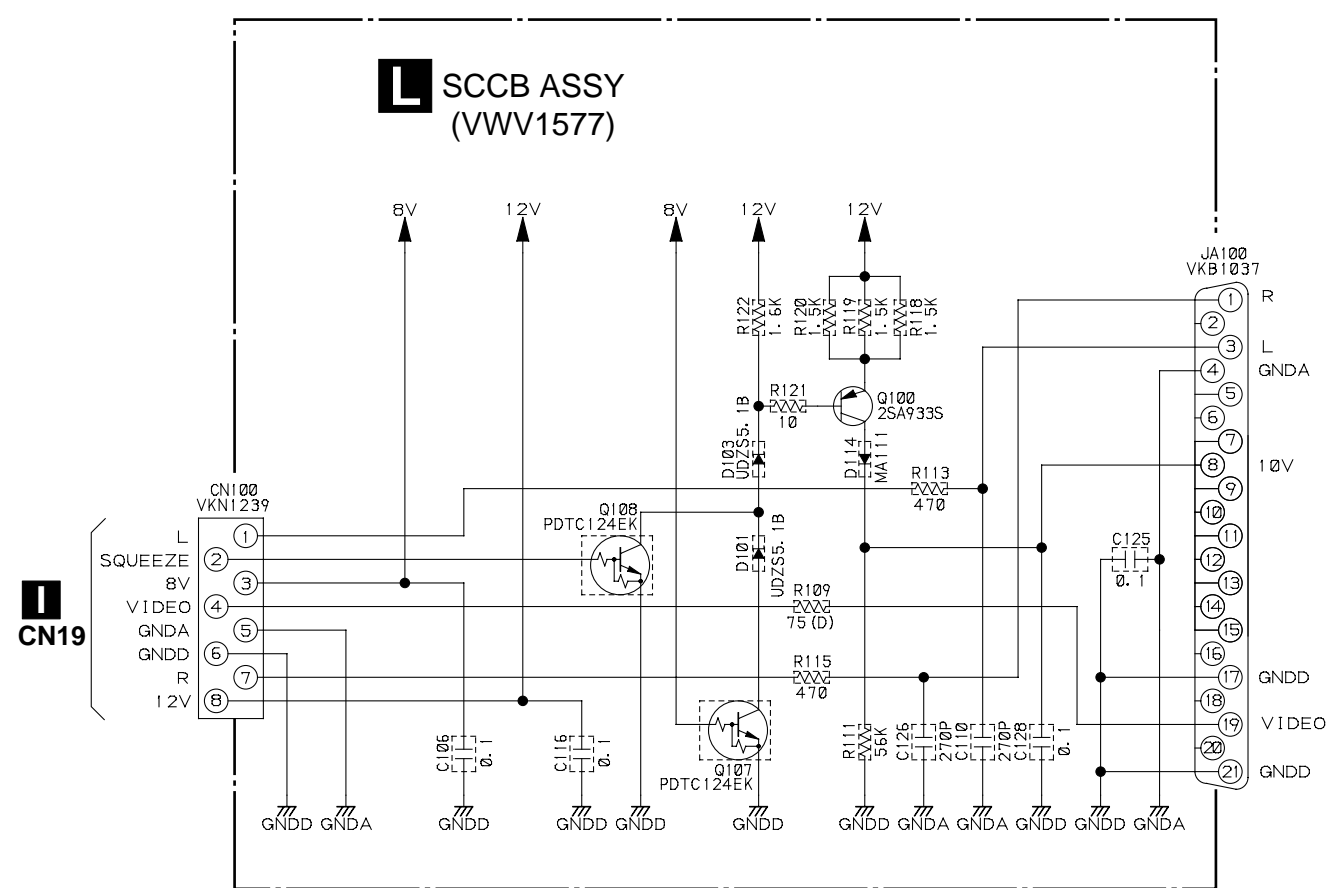
## 3.7 POWER SUPPLY AND MSWB ASSEMBLIES

## 《 NOTE OF SPARE PARTS IN POWER SUPPLY ASSY 》

- In case of repairing, use the described parts only to prevent an accident.
- Please write the red ✓ mark on the board when the primary section of POWER SUPPLY Assy is repaired.
- Please take care to keep the space, not touching other parts when replacing the parts.



3.8 SCCB ASSY(WY,WY/RD,WYW/SP ONLY)



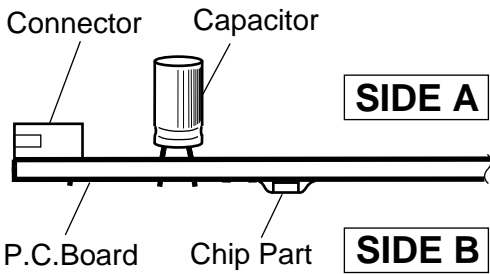
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

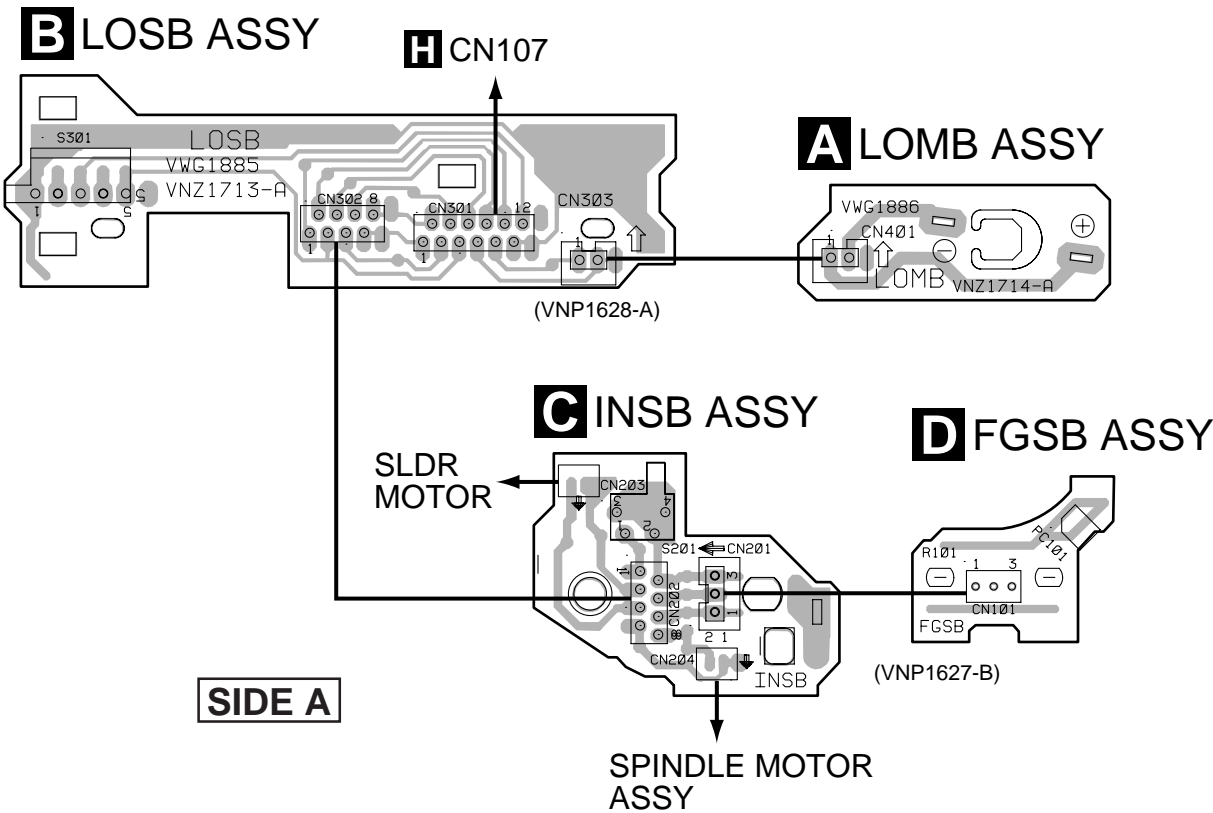
- 1. Part numbers in PCB diagrams match those in the schematic diagrams.
- 2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

- 3. The parts mounted on this PCB include all necessary parts for several destinations.
- For further information for respective destinations, be sure to check with the schematic diagram.
- 4. View point of PCB diagrams.

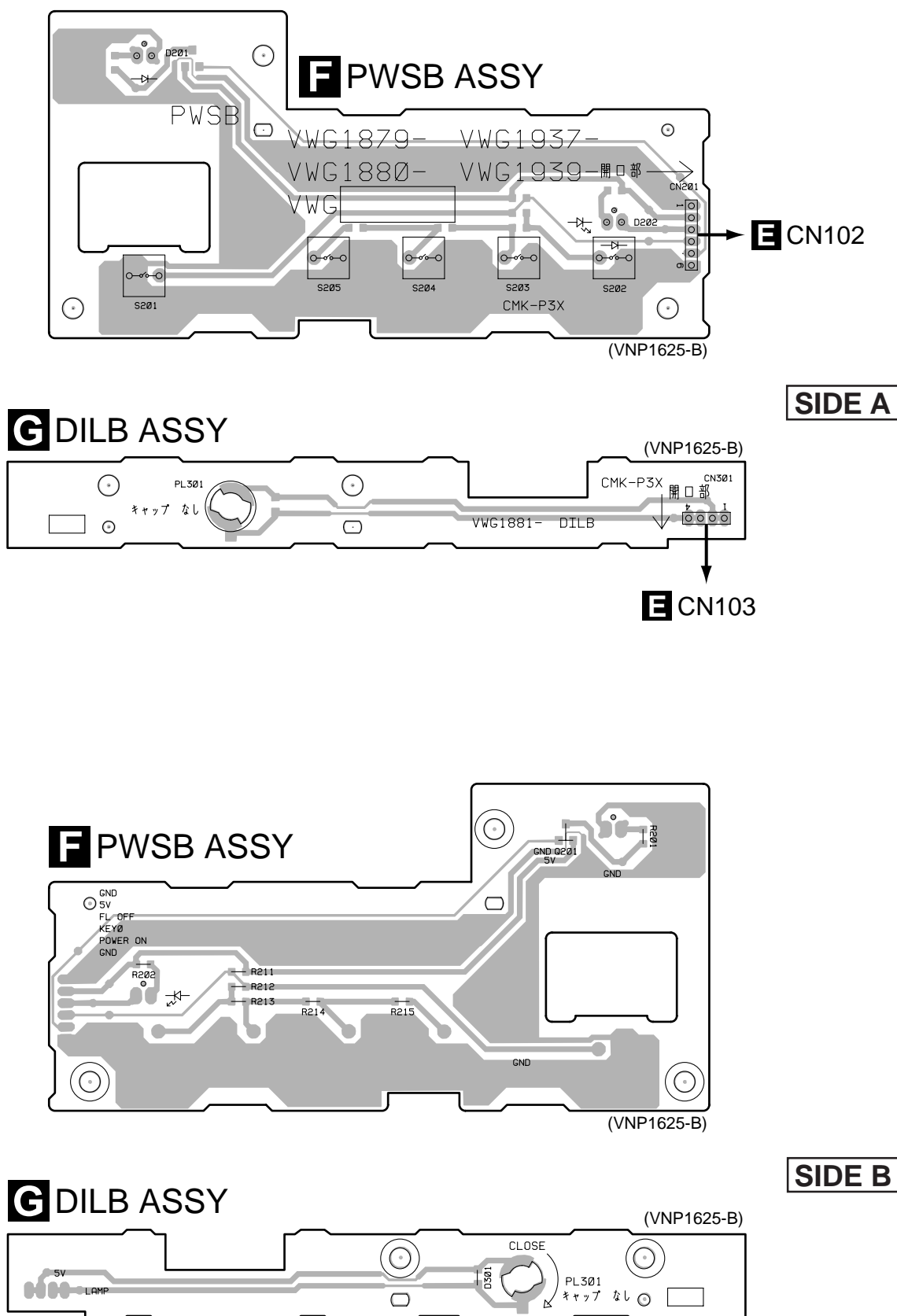


4.1 LOMB, LOSB, INSB AND FGSB ASSEMBLIES





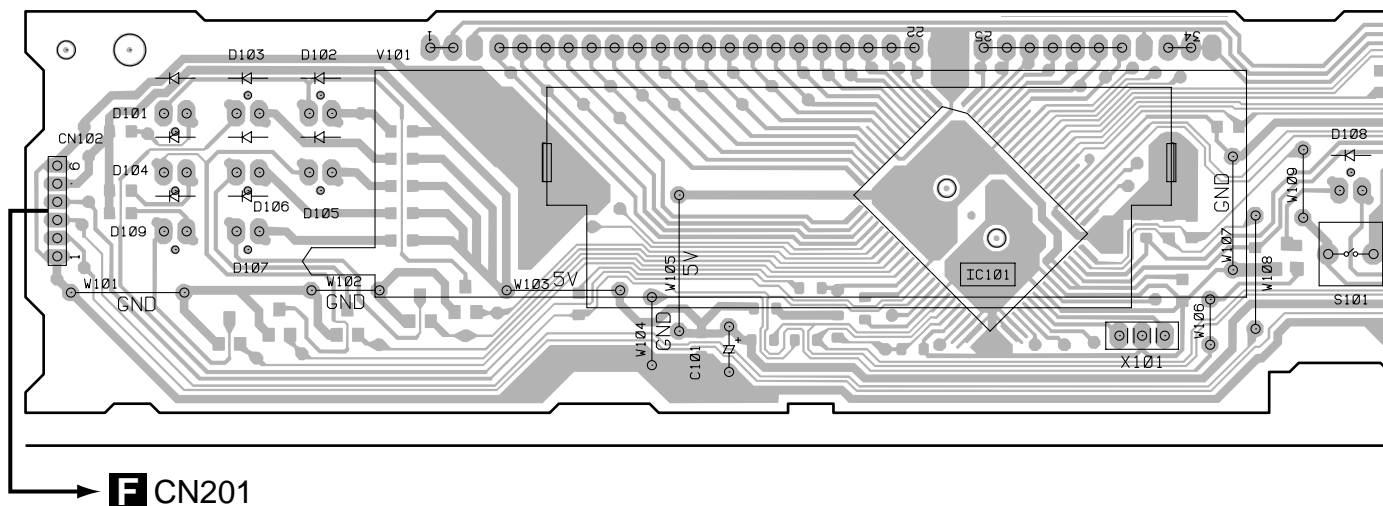
## 4.2 PWSB AND DILB ASSEMBLIES



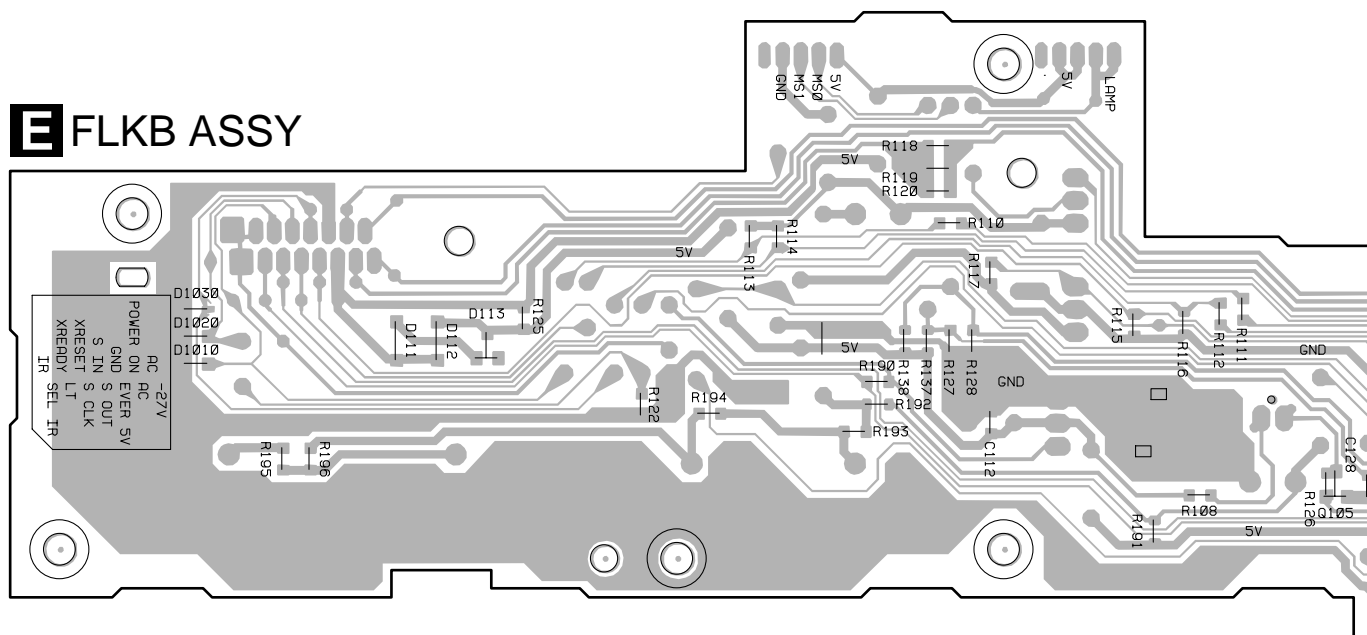
### 4.3 FLKB ASSY

**SIDE A**

## E FLKB ASSY

**SIDE B**

**E** FLKB ASSY



Q105

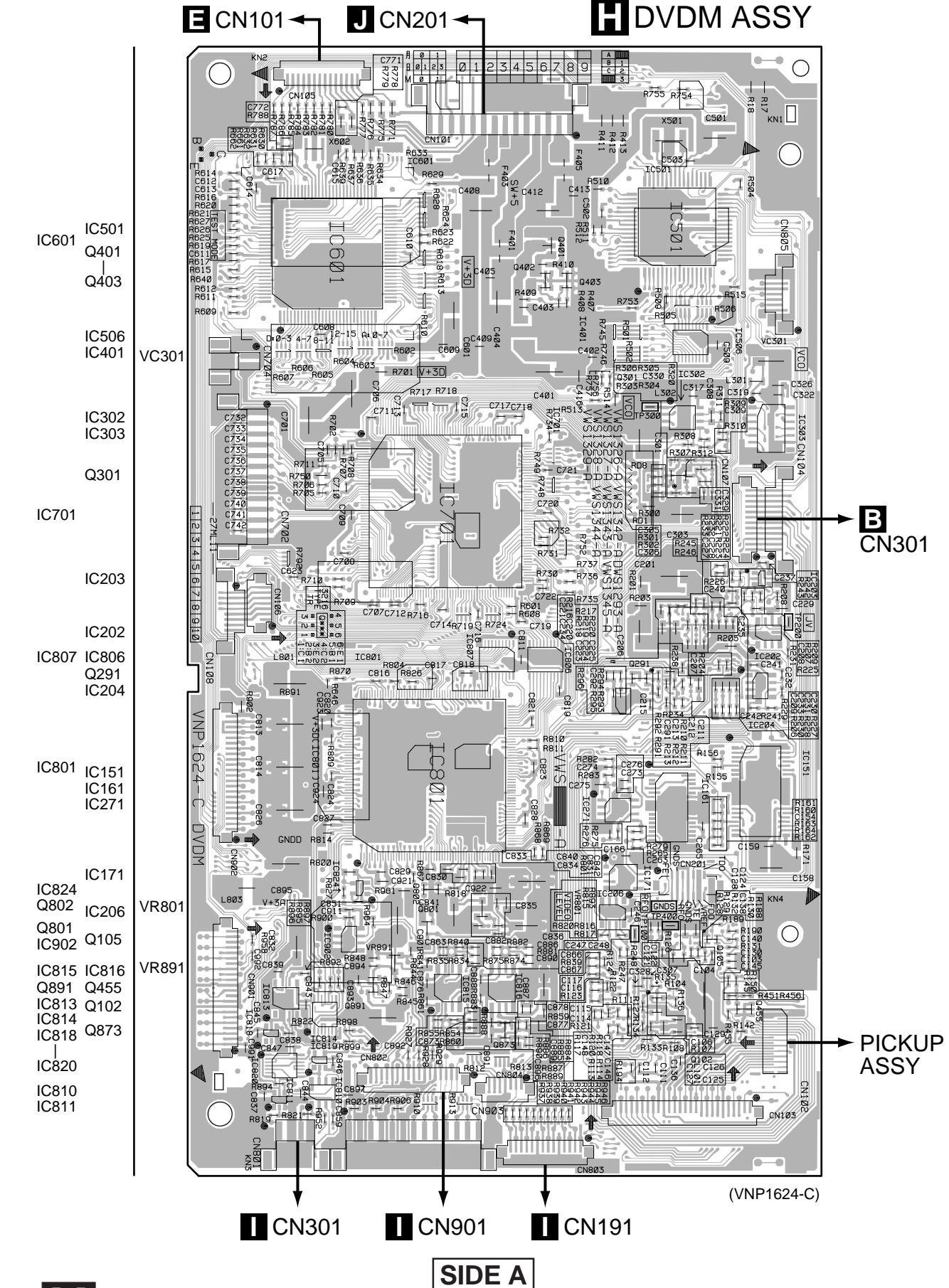


8

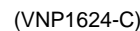


# 4.4 DVDM ASSY

• This PCB is a four-layer board. Middle layer is mainly connected to Vcc and GND.



## SIDE B

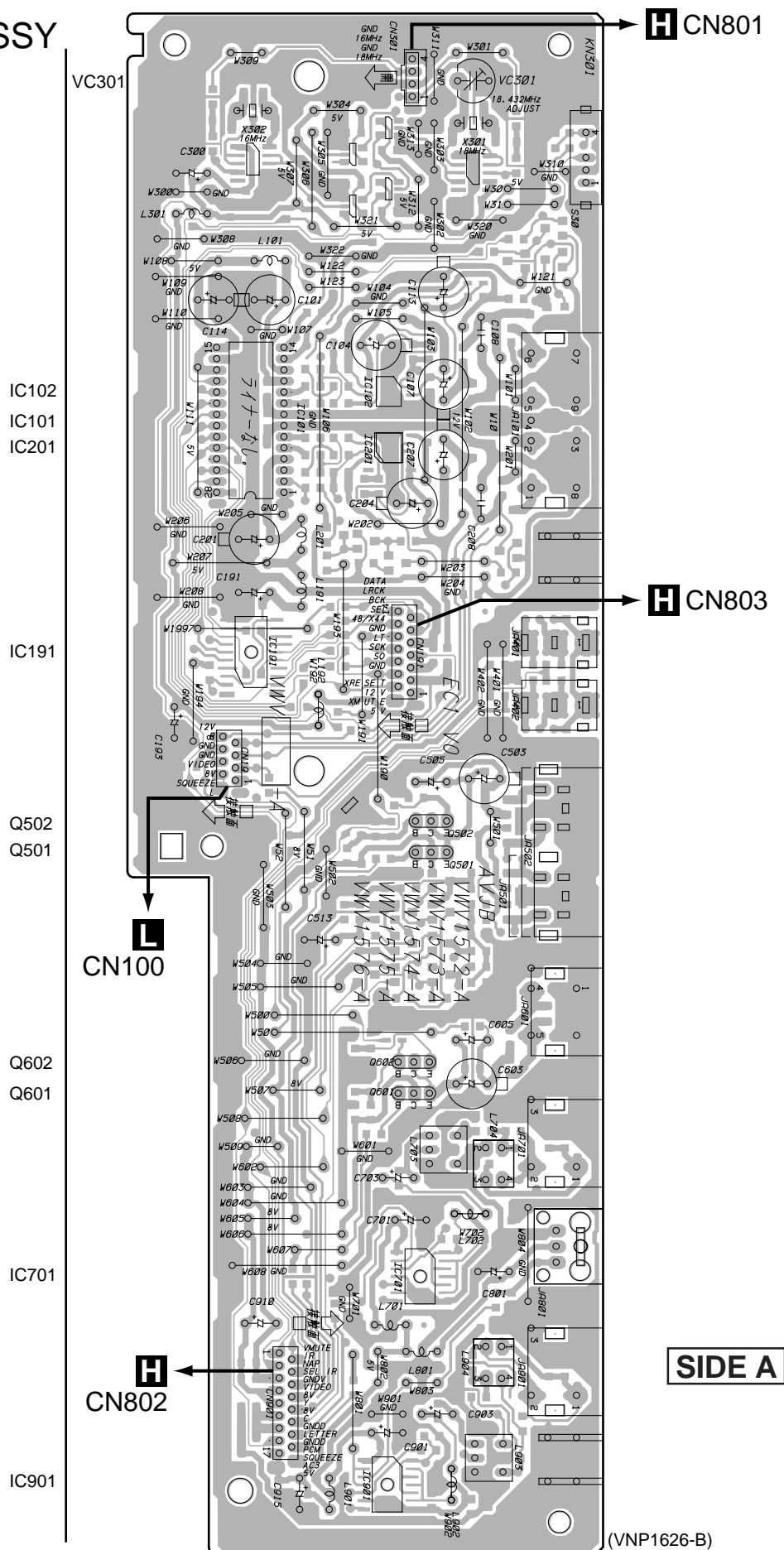


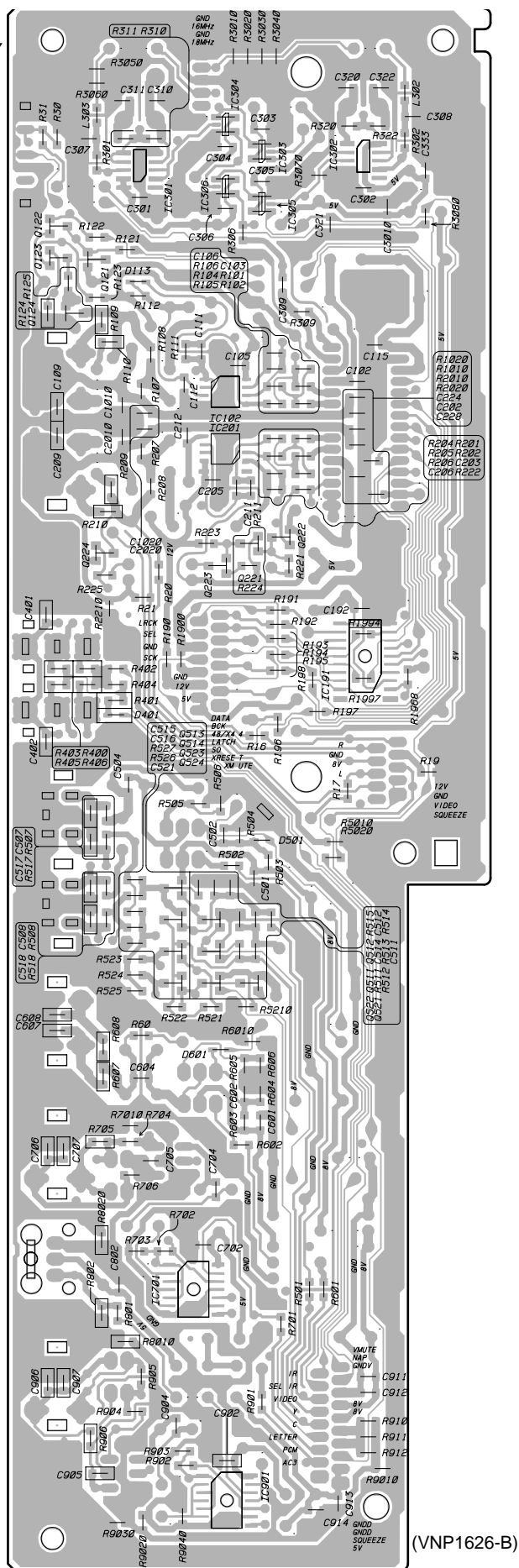
Q103 IC804  
Q108  
|  
Q110  
Q104

D



**AVJB ASSY**



**SIDE B**

IC901





## 5. PCB PARTS LIST

NOTES: ●Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.

●The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part.

Therefore, when replacing, be sure to use parts of identical designation.

●When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560  $\Omega$   $\rightarrow$   $56 \times 10^1$   $\rightarrow$  561 ..... RD1/4PU  $\begin{bmatrix} 5 & 6 & 1 \end{bmatrix}$  J

47k  $\Omega$   $\rightarrow$   $47 \times 10^3$   $\rightarrow$  473 ..... RD1/4PU  $\begin{bmatrix} 4 & 7 & 3 \end{bmatrix}$  J

0.5  $\Omega$   $\rightarrow$  R50 ..... RN2H  $\begin{bmatrix} R & 5 & 0 \end{bmatrix}$  K

1  $\Omega$   $\rightarrow$  1R0 ..... RS1P  $\begin{bmatrix} 1 & R & 0 \end{bmatrix}$  K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k  $\Omega$   $\rightarrow$   $562 \times 10^1$   $\rightarrow$  5621 ..... RN1/4PC  $\begin{bmatrix} 5 & 6 & 2 & 1 \end{bmatrix}$  F

### 5.1 LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	Part No.				Remarks
		DV-505/WY, WY/RD,WYW/SP	DV-505 /RD/RC	DV505 /RAM	DV-505 /RL	
NSP	LOAB ASSY	VWM1798	VWM1798	VWM1798	VWM1798	
NSP	└ LOMB ASSY	VWG1886	VWG1886	VWG1886	VWG1886	
NSP	└ LOSB ASSY	VWG1885	VWG1885	VWG1885	VWG1885	
NSP	SMEB ASSY	VWM1797	VWM1797	VWM1797	VWM1797	
NSP	└ INSB ASSY	VWG1883	VWG1883	VWG1883	VWG1883	
NSP	└ FGSB ASSY	VWG1884	VWG1884	VWG1884	VWG1884	
NSP	FLKY ASSY	VWM1792	VWM1824	VWM1821	VWM1791	
	└ FLKB ASSY	VWG1876	VWG1940	VWG1934	VWG1875	
NSP	└ PWSB ASSY	VWG1937	VWG1880	VWG1880	VWG1880	
NSP	└ DILB ASSY	VWG1881	VWG1881	VWG1881	VWG1881	
NSP	JKSB ASSY	VWM1796	VWM1795	VWM1795	VWM1795	
	└ AVJB ASSY	VWV1575	VWV1574	VWV1574	VWV1574	
	└ MSWB ASSY	VWG1882	VWG1882	VWG1882	VWG1882	
$\Delta$	DVDM ASSY	VWS1326	VWS1326	VWS1326	VWS1326	
	POWER SUPPLY ASSY	VWR1285	VWR1285	VWR1285	VWR1285	
	SCCB ASSY	VWV1577	Not used	Not used	Not used	

#### FLKB ASSY

VWG1876, VWG1940, VWG1934 and VWG1875 are constructed the same except for the following :

Mark	Symbol and Description	Part No.				Remarks
		VWG1876	VWG1940	VWG1934	VWG1875	
	R118 – R120	RS1/10S620J	RS1/10S360J	RS1/10S360J	RS1/10S360J	
	R128	RS1/10S273J	RS1/10S163J	RS1/10S273J	RS1/10S473J	
	R138	RS1/10S203J	RS1/10S272J	RS1/10S683J	RS1/10S623J	

#### PWSB ASSY

VWG1937 and VWG1880 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		VWG1937	VWG1880	
	R201	RS1/10S181J	RS1/10S751J	

# DV-505

## AVJB ASSY

VWV1575 and VWV1574 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		VWV1575	VWV1574	
	IC191 L191 C191 C192  R16,R17,R19 – R21,R60 R1968 R1994,R1997 CN19 8P FFC CONNECTOR	PD0236AM LAU220J CEAT101M10 CKSQYF104Z25  RS1/10S0R0J RS1/10S471J Not used VKN1239	Not used Not used Not used Not used  Not used Not used RS1/10S0R0J Not used	

## 5.2 PARTS LIST FOR DV-505/WY

Mark No. Description Part No.

### LOAB ASSY

#### OTHERS

PC BOARD LOAB VNP1628

### A LOMB ASSY

#### OTHERS

CN401 KR CONNECTOR B2B-PH-K-S

### B LOSB ASSY

#### SWITCH

S301 VSK1011

#### OTHERS

CN303 KR CONNECTOR B2B-PH-K-S  
CN302 8P FFC CONNECTOR VKN1268  
CN301 12P FFC CONNECTOR VKN1272

### SMEB ASSY

#### OTHERS

PC BOARD SMEB VNP1627

### C INSB ASSY

#### SWITCH

S201 DSG1017

#### OTHERS

CN201 KR CONNECTOR 3P B3B-PH-K-S  
PCB BINDER DEF1012  
CN202 8P FFC CONNECTOR VKN1239

Mark No. Description Part No.

### D FGSB ASSY

#### SEMICONDUCTOR

PC101 GP2S27(B)

#### RESISTORS

All Resistors RS1/10S□□□J

#### OTHERS

CN101 KR CONNECTOR 3P B3B-PH-K-S

### E FLKB ASSY

#### SEMICONDUCTORS

IC101 PD4890A  
IC102 S-806D  
Q103 DTD113ES  
D112 EP05Q04

#### SWITCHES

S102-S106 RSG1030

#### CAPACITORS

C101,C102 CEJA470M6R3  
C117,C125-C128 CKSQYB102K50  
C111-C114 CKSQYF104Z25

#### RESISTORS

All Resistors RS1/10S□□□J

#### OTHERS

CN103 FJ CONNECTOR 4P 04P-FJ  
CN102 FJ CONNECTOR 6P 06P-FJ  
REMOTE RECEIVER UNIT GP1U28X  
V101 FL TUBE VAW1046  
SPACER VEC1599  
  
CN101 14P FFC CONNECTOR VKN1274  
FL HOLDER VNF1087  
X101 CERAMIC RESONATOR VSS1104  
(5MHz)

Mark	No.	Description	Part No.
<b>F</b>	<b>PWSB ASSY</b>		
	<b>SEMICONDUCTORS</b>		
	Q201		PDTA124EK
	D202		SLP4118C51H
	D201		SLP9118C51H
	<b>SWITCH</b>		
	S202		RSG1030
	<b>RESISTORS</b>		
	All Resistors		RS1/10S□□□J
	<b>OTHERS</b>		
	CN201	FJ CONNECTOR 6P	06R-FJ
<b>G</b>	<b>DILB ASSY</b>		
	<b>SEMICONDUCTOR</b>		
	D301		MA111
	<b>OTHERS</b>		
	CN301	FJ CONNECTOR 4P	04R-FJ
	PL301	LAMP (DVD ILUM.)	VEL1022
<b>H</b>	<b>DVDM ASSY</b>		
	<b>SEMICONDUCTORS</b>		
	IC171		BA10393F
	IC161		BA6195FP
	IC151		BA6797FP
	IC813		CY2081SL-611
	IC702		HM514800CJ-7
	IC101		LA9700M
	IC201		LC78650NE
	IC802		MB811171622A-100FN
	IC801		MB86371
	IC815,IC816		MC14577CF
	IC271,IC302		NJM2100M
	IC203		NJM2107F
	IC901		PD2058A
	IC601		PD3381A
	IC701		PD4833A
	IC501		PD4889A
	IC502		SRM2B256SLMX70
△	IC401		TA78M08F
	IC202,IC204,IC206,IC902		TC4W53F
	IC604		TC551001BFL-85
	IC503		TC74HC573AF
	IC804		TC74HCT541AF
	IC303		TC74HCU04AF
	IC807,IC808		TC74LCX245FT
	IC821		TC74VHC00FT
	IC814,IC820		TC74VHC02FT
	IC505,IC605		TC74VHC139FT
	IC504		TC74VHC20FT
	IC805,IC806,IC809		TC74VHC541FT
	IC506		TC74VHCT245AFT

Mark	No.	Description	Part No.
	IC817		TC74VHCT541AFT
	IC811,IC818,IC819		TC7SHU04F
	IC810		TC7WU04F
	IC301		TLC5540INS
	IC603		VYW1536
△	Q401		2SB1260
	Q108		HN1K03FU
	Q455,Q831,Q832,Q851,Q852		IMT1A
	Q871,Q872		IMT1A
	Q103,Q402,Q873		IMX1
	Q102,Q104,Q291,Q301		IMZ1A
	Q106,Q603		PDTA114EK
	Q107,Q109,Q261,Q602		PDTC114EK
	Q601,Q771,Q772		PDTC114TK
	D301		KV1410
	D171,D172		MA152WK
	D601		RB501V-40
	<b>COILS AND FILTERS</b>		
	F771,F778,F779	CHIP BEAD	DTF1067
	L941,L942,L945,L946		QTL1011
		CHIP SOLID INDUCTOR	
	F896	FERRITE BEAD	VTF1077
	F801	VIDEO FILTER	VTF1098
	F401-F406	CHIP EMI FILTER	VTH1037
	L301	CHIP COIL (1.5mH)	VTL1059
	L101,L302	CHIP COIL (10mH)	VTL1061
	L802,L803	CHIP COIL	VTL1067
	L335,L340,L342	CHIP BEAD	VTL1074
	L777,L780-L787,L895		VTL1075
		CHIP BEAD	
	L897-L899	CHIP BEAD	VTL1075
	<b>CAPACITORS</b>		
	C623		CCSRCH100D50
	C152,C208,C291,C612,C613		CCSRCH101J50
	C700,C735,C737,C739		CCSRCH101J50
	C897,C898		CCSRCH101J50
	C111,C139,C215,C231,C232		CCSRCH151J50
	C248		CCSRCH151J50
	C125,C148,C329		CCSRCH180J50
	C112,C118		CCSRCH220J50
	C121,C130,C199,C319,C324		CCSRCH330J50
	C120		CCSRCH331J50
	C310,C323,C327		CCSRCH470J50
	C230		CCSRCH471J50
	C126,C331,C838		CCSRCH560J50
	C127,C330,C863,C873,C882		CCSRCH5R0C50
	C160		CCSRCH680J50
	C401		CEV101M10
	C101,C104,C201,C325,C601		CEV101M6R3
	C701,C704,C706,C801		CEV101M6R3
	C803,C804,C813-C815,C826		CEV101M6R3
	C901		CEV101M6R3
	C123,C158,C264,C412,C414		CEV220M16
	C835,C895		CEV221M4
	C131,C135,C205,C206,C301		CEV470M6R3
	C303,C404,C406,C408,C410		CEV470M6R3
	C501,C504,C832,C836,C841		CEV470M6R3

Mark	No.	Description	Part No.
	C887		CEV470M6R3
	C211		CKSQYB104K25
	C109,C124,C216,C220,C229		CKSQYB105K10
	C234,C261,C275,C308,C326		CKSQYB105K10
	C332,C333,C730,C731		CKSQYB105K10
	C818,C823,C828		CKSQYF105Z16
	C213,C292,C309,C321		CKSRYB102K50
	C105,C106,C108,C146,C147		CKSRYB103K50
	C151,C154-C157,C161,C207		CKSRYB103K50
	C217,C221,C247,C263,C265		CKSRYB103K50
	C276,C318,C320,C620,C705		CKSRYB103K50
	C722,C772,C859		CKSRYB103K50
	C143,C162-C165,C223,C224		CKSRYB104K16
	C242,C273,C274,C311,C312		CKSRYB104K16
	C315		CKSRYB104K16
	C141		CKSRYB222K50
	C328		CKSRYB223K25
	C262,C271		CKSRYB472K50
	C122		CKSRYB473K16
	C102,C103,C113,C129		CKSRYF104Z16
	C132-C134,C136,C137,C159		CKSRYF104Z16
	C166,C191,C202-C204,C209		CKSRYF104Z16
	C214,C218,C219,C222		CKSRYF104Z16
	C226-C228,C235,C237,C241		CKSRYF104Z16
	C246,C302,C304,C305,C317		CKSRYF104Z16
	C322,C402,C403,C405,C407		CKSRYF104Z16
	C409,C411,C413,C415		CKSRYF104Z16
	C502,C503,C505-C509		CKSRYF104Z16
	C602-C605,C608-C611		CKSRYF104Z16
	C614,C615,C617,C621,C622		CKSRYF104Z16
	C702,C703,C707-C721		CKSRYF104Z16
	C732-C734,C736,C738		CKSRYF104Z16
	C740-C742,C771,C791,C800		CKSRYF104Z16
	C802,C805-C812,C816,C817		CKSRYF104Z16
	C819-C822,C824,C825,C827		CKSRYF104Z16
	C829,C830,C833,C834,C837		CKSRYF104Z16
	C839,C840,C842-C848		CKSRYF104Z16
	C861,C862,C867,C871,C872		CKSRYF104Z16
	C876,C878,C881,C883		CKSRYF104Z16
	C888-C890,C902-C905,C911		CKSRYF104Z16
	C852,C855,C857 (2.2μF/6.3V)	VCG1030	
	C858,C922-C924 (2.2μF/6.3V)	VCG1030	
	VC301 (40pF)	VCM1010	

## RESISTORS

R752	RA4C101J
R507,R508,R624,R628,R633	RA4C103J
R703,R704,R717,R718	RA4C103J
R745,R746,R761,R762,R792	RA4C103J
R812,R813	RA4C103J
R137,R501,R502,R505,R506	RA4C220J
R604-R607,R712,R713,R719	RA4C220J
R724,R748,R749,R791	RA4C220J
R802,R803,R808	RA4C220J
R602,R603,R610,R613,R618	RA4C470J
R101,R11-R14,R141	RS1/10S0R0J
R15-R17,R171,R18	RS1/10S0R0J
R201-R203,R266,R300,R319	RS1/10S0R0J
R333,R411-R413,R701	RS1/10S0R0J
R775,R776,R891,R893	RS1/10S0R0J

Mark	No.	Description	Part No.
	R920,R921,R935,R936,R961		RS1/10S0R0J
	R205		RS1/10S101J
	R835,R839,R855,R859,R875		RS1/16S1001F
	R881		RS1/16S1001F
	R834,R854,R874		RS1/16S1201F
	R823-R825		RS1/16S1500F
	R117,R118		RS1/16S1501F
	R126		RS1/16S1502F
	R241,R247		RS1/16S2202F
	R110,R153,R155,R173,R174		RS1/16S2702F
	R213,R228,R229,R248		RS1/16S2702F
	R152,R156,R158-R164		RS1/16S4702F
	R167-R170,R172,R175,R194		RS1/16S4702F
	R227		RS1/16S4702F
	VR801 (1kΩ)		VCP1125
	Other Resistors		RS1/16S□□□J

## OTHERS

CN101	PH CONNECTOR	S14B-PH-SM3
CN801	PH CONNECTOR	S4B-PH-SM3
TP100,TP200,TP300,TP400	CHECKER CHIP	VKF1001
CN201	B TO B CONNECTOR	VKN1324
	14P	
CN106	7P FFC CONNECTOR	VKN1411
CN107	12P FFC CONNECTOR	VKN1416
CN105,CN803	14P FFC CONNECTOR	VKN1418
CN802	17P FFC CONNECTOR	VKN1421
CN102	20P FFC CONNECTOR	VKN1445
KN1-KN3	EARTH METAL	VNF1109
	LABEL	VRW1634
X602	CHIP CERAMIC	VSS1114
	RESONATOR (20MHz)	
X501	CHIP CERAMIC	VSS1115
	RESONATOR (10MHz)	
X901	CHIP CERAMIC	VSS1118
	RESONATOR (24MHz)	
IC SOCKET FOR IC603		VKH1012

## AVJB ASSY

### SEMICONDUCTORS

IC102,IC201	BA4560F
IC191	PD0236AM
IC101	PD2029A(L)
IC901	TC74HCU04AF
IC304-IC306	TC7S02F
IC303	TC7S04F
IC301,IC302	TC7WU04F
Q123,Q223	2PB709A
Q514	2PD601A
Q501,Q502,Q601,Q602	2SC1740S
Q124,Q224	2SD2114K
Q523,Q524	PDTA124EK
Q121,Q122,Q221,Q222	PDTC124EK
Q521,Q522	PDTC124EK
D401,D501,D601	MA111
D113	UDZS6.2B

Mark	No.	Description	Part No.
<b>COILS</b>			
	L101,L191,L201,L301,L801		LAU220J
	L901		LAU220J
	L903 PULSE TRANS.		PTL1003
	L902 NOISE FILTER		RTF1167
	L302,L303 CHIP BEAD		VTL1098
<b>SWITCH</b>			
	S30		VSH1020
<b>CAPACITORS</b>			
	C103,C203		CCSQCH820J50
	C310,C322		CCSQCH120J50
	C320		CCSQCH270J50
	C311		CCSQCH330J50
	C106,C111,C206,C211		CCSQCH470J50
	C307,C308		CCSQCH470J50
	C114,C191,C193,C801,C901		CEAT101M10
	C903		CEAT101M10
	C503,C603		CEAT102M6R3
	C300		CEAT470M16
	C101,C201		CEAT471M16
	C107,C207		CEGA470M25
	C104,C113,C204		CEZA470M25
	C112,C212,C224,C904		CKSQYF103Z50
	C102,C105,C115,C192,C202		CKSQYF104Z25
	C205,C228,C301-C306,C309		CKSQYF104Z25
	C321,C333,C401,C502,C511		CKSQYF104Z25
	C516,C602,C802,C902,C906		CKSQYF104Z25
	C911-C913		CKSQYF104Z25
	C108,C208		CQ MBA332J50
	VC301 (20pF)		VCM-008
<b>RESISTORS</b>			
	R508,R518,R607		RN1/10SC75R0D
	R106,R111,R206,R211		RN1/10SE4702D
	Other Resistors		RS1/10S□□□J
<b>OTHERS</b>			
	CN501 4P MINI DIN SOCKET		AKP7008
	CN301 KR CONNECTOR		B4B-PH-K-S
	JA101 4P PIN JACK		DKB1038
	JA801 OPTICAL MODULE		GP1F32T
	JA401 REMOTE CONTROL JACK		RKN1004
	PCB BINDER		VEF1040
	JA601 1P PIN JACK		VKB1063
	JA901 1P PIN JACK (NI,BLK)		VKB1077
	CN19 8P FFC CONNECTOR		VKN1239
	CN191 14P FFC CONNECTOR		VKN1245
	CN901 17P FFC CONNECTOR		VKN1248
	SCREW TERMINAL		VNE1948
	KN301 EARTH METAL		VNF1084
	X302 CRYSTAL (16MHz)		VSS1081
	X301 CRYSTAL (18.432MHz)		VSS1116

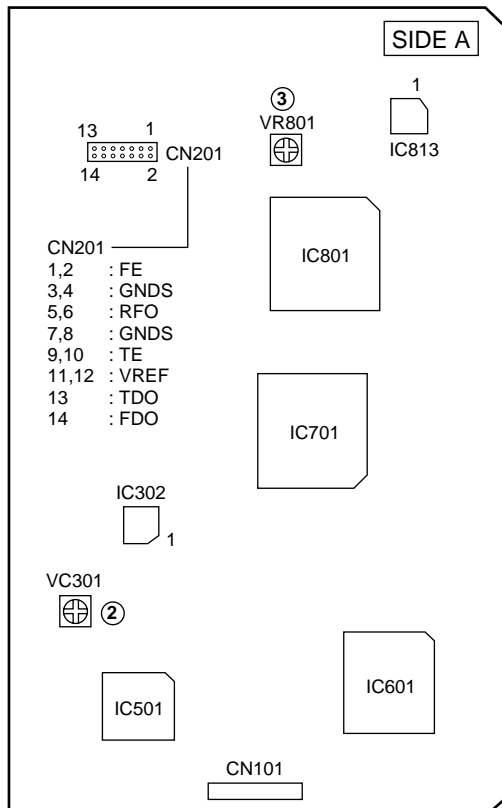
Mark	No.	Description	Part No.
<b>J POWER SUPPLY ASSY</b>			
<b>SEMICONDUCTORS</b>			
△	IC201		AN1431T
△	IC411		VZF1048
△	IC711		VZF1060
△	Q101,Q103		VZF1062
△	Q102		2SC3377
	Q511		2SC1740S
△	D511		10ELS2
	D512,D514		1SS270A
△	D105		1SS270A
△	D104		MTZJ2.4B
	D513		MTZJ8.2B
△	D106		PS2561L1-1VM
△	D103		RD18FB2
△	D311		S3L20U
△	D101		VZF1044
△	D108,D110		VZF1045
△	D211		VZF1058
△	D411		VZF1059
△	D212		VZF1061
<b>OTHERS</b>			
△	P311 FUSE (1A)		VEK1041
△	P211 FUSE (1.5A)		VEK1048
△	F101 FUSE (2A)		VEK1049
<b>K MSWB ASSY</b>			
<b>SWITCH</b>			
△	S10		ASG1006
<b>CAPACITOR</b>			
△	C10 (0.01μ/AC250V)		ACG7010
<b>OTHERS</b>			
	CN10 AC CORD SOCKET		RKP1751
<b>L SCCB ASSY</b>			
<b>SEMICONDUCTORS</b>			
	Q100		2SA933S
	Q107,Q108		PDTC124EK
	D114		MA111
	D101,D103		UDZS5.1B
<b>CAPACITORS</b>			
	C110,C126		CCSQCH271J50
	C106,C116,C125,C128		CKSQYF104Z25
<b>RESISTORS</b>			
	R109		RN1/10SC75R0D
	Other Resistors		RS1/10S□□□J
<b>OTHERS</b>			
	PCB BINDER		VEF1040
JA100	RGB CONNECTOR		VKB1037
CN100	8P FFC CONNECTOR		VKN1239
	PC BOARD (SCCB)		VNP1629

## 6. ADJUSTMENT

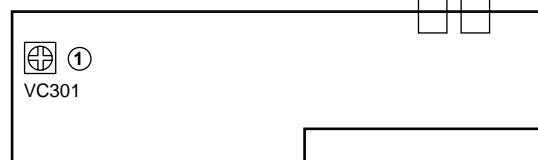
### 6.1 ADJUSTMENT ITEMS AND LOCATION

#### ■ Adjustment Points (PCB Part)

DVDM ASSY



AVJB ASSY



#### ■ Adjustment Items

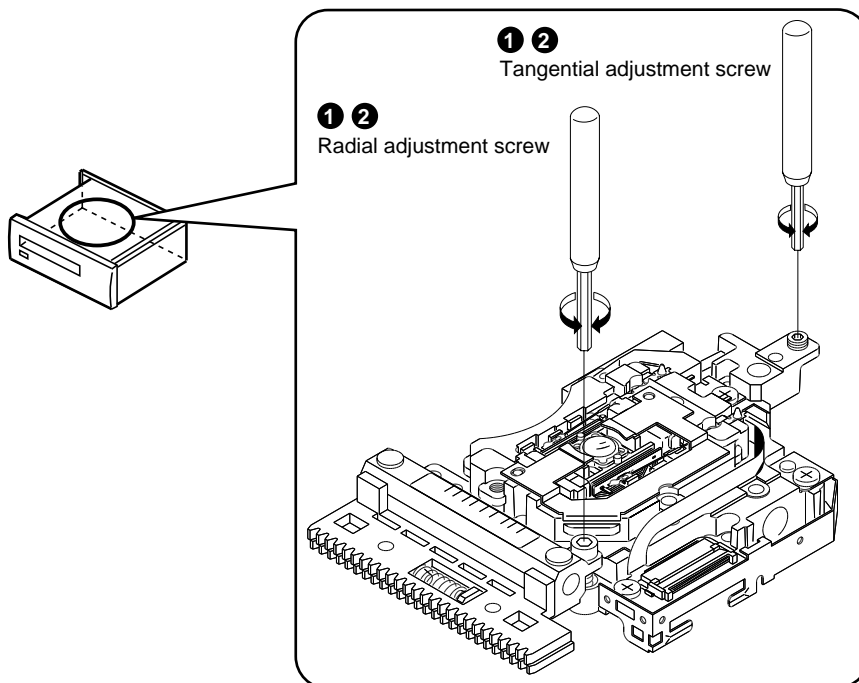
##### [Mechanical Part]

- ① Tangential Skew and Radial Skew Coarse Adjustment
- ② DVD Jitter Adjustment

##### [Electrical Part]

- ① 18MHz Master Clock Adjustment
- ② VCO Offset Adjustment
- ③ Video Output Level Adjustment








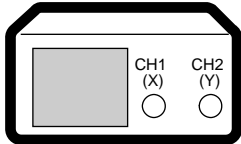

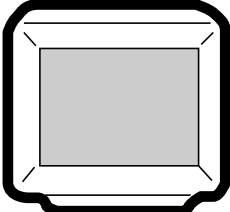
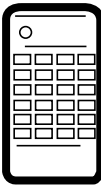

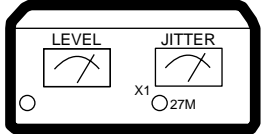

#### ■ Adjustment Points (Mechanism Part)



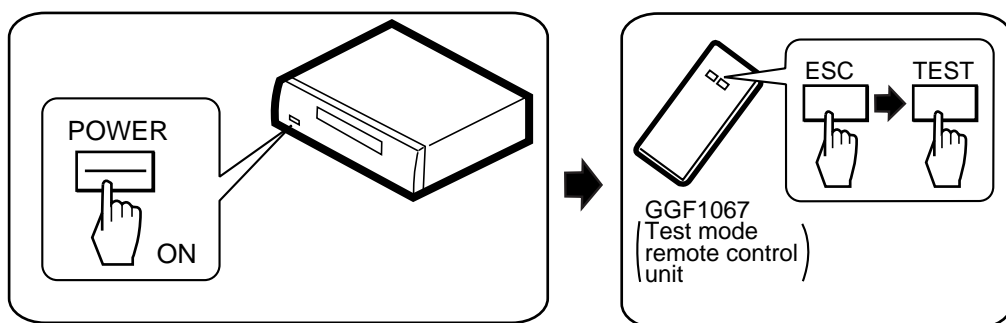
**Note 1:**  
Remove the tray when adjusting the tangential and radial adjustment screws.

**Note 2:**  
After the adjustment, stabilize the screw with an adhesive.

6.2 JIGS AND MEASURING INSTRUMENTS

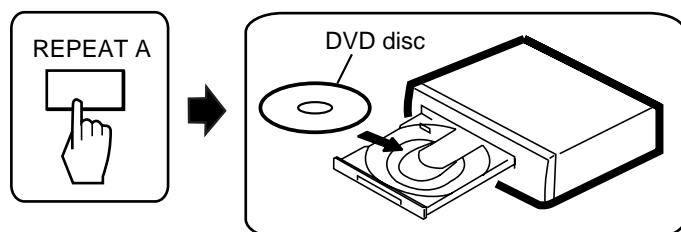
 <p>CD test disc (ABEX-784)</p>	 <p>DVD test disc (DVD-MJK1)</p>	 <p>⊖ Screwdriver (medium)</p>	 <p>⊖ Screwdriver (small)</p>
 <p>⊖ Precise screwdriver</p>	 <p>⊕ Screwdriver (large)</p>	 <p>⊕ Screwdriver (medium)</p>	 <p>Dual-trace oscilloscope (with delay) Frequency band <math>\geq 40\text{MHz}</math></p>
 <p>Frequency counter Display digit <math>\geq 8\text{-digit}</math></p>	 <p>TV monitor</p>	 <p>Test mode remote control unit (GGF1067)</p>	 <p>Hexagonal screwdriver</p>
 <p>Jitter Meter</p>	 <p>Equalizer Unit</p>		

## 6.3 TEST MODE

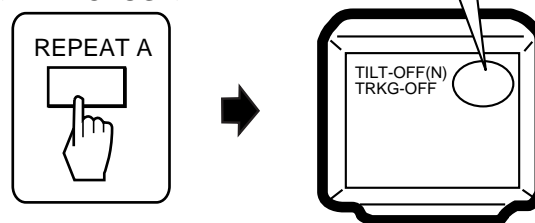
**TEST MODE: ON****TEST MODE: DISC SET**

## • With TRAY

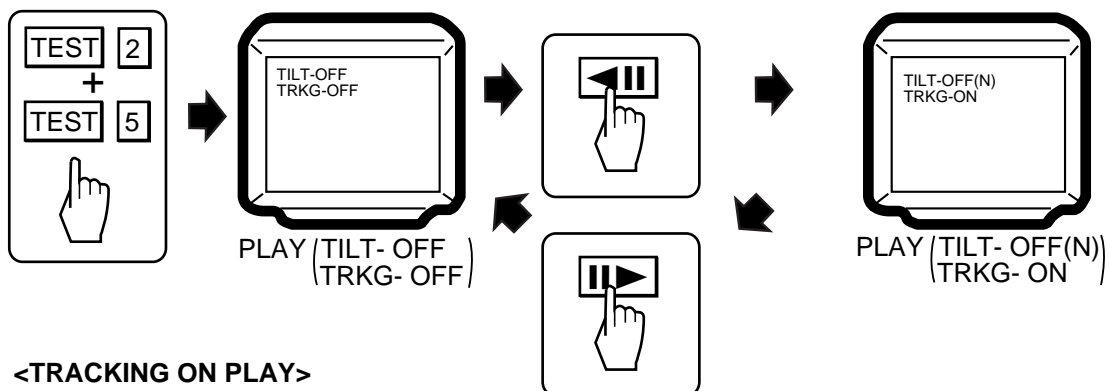
## &lt;TRAY OPEN&gt;



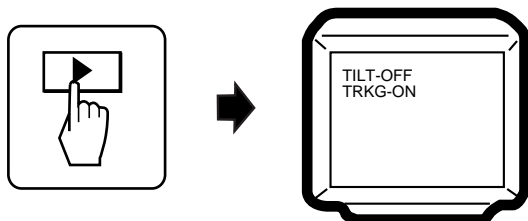
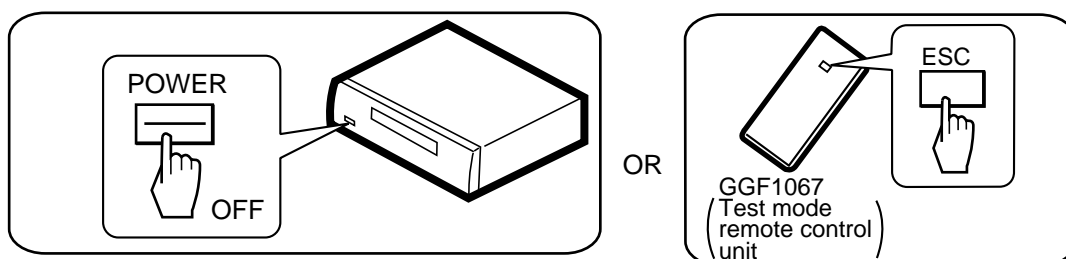
## &lt;TRAY CLOSE&gt;

**TEST MODE: PLAY**

## &lt;TRACKING OFF PLAY&gt;



## &lt;TRACKING ON PLAY&gt;

**TEST MODE: OFF**

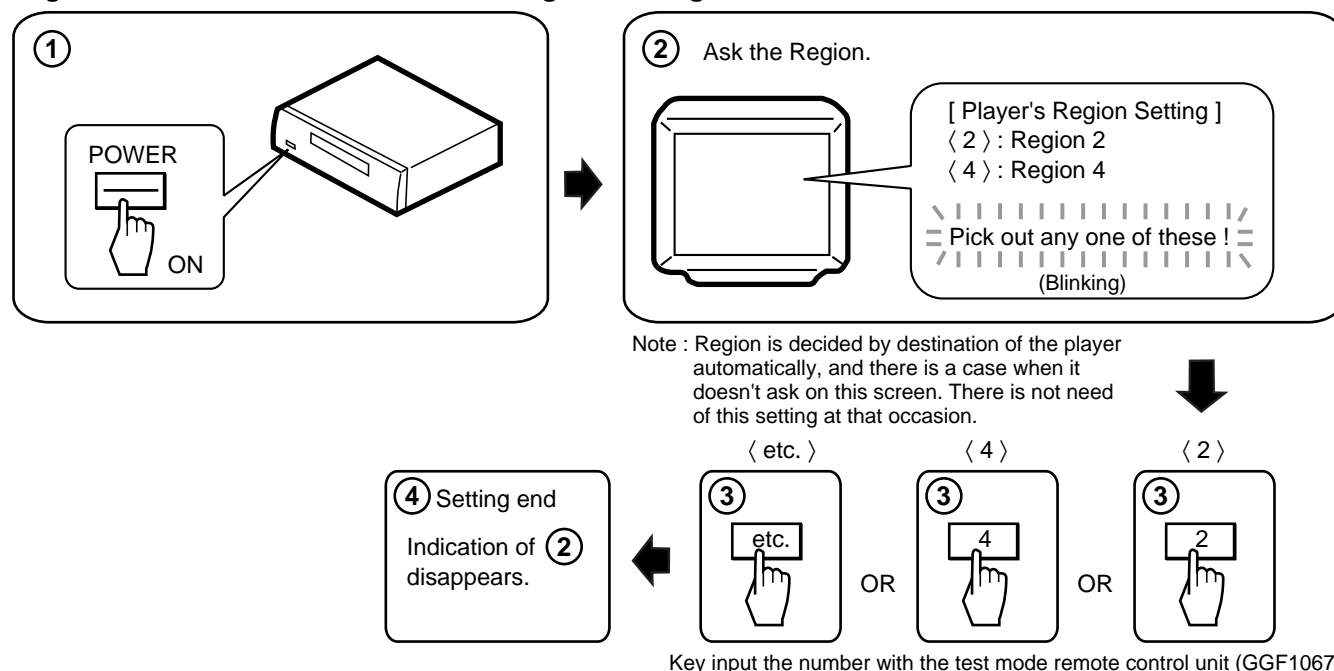


## 6.4 NECESSARY ADJUSTMENT POINTS

When	Adjustment Points
<b>■ EXCHANGE MECHANISM ASSY PARTS</b>	
Exchange pickup	<div>Mechanical point ①, ②</div> <div>Electric point _____</div>
Exchange spindle motor	<div>Mechanical point _____</div> <div>Electric point _____</div>
<b>■ EXCHANGE PCB ASSY</b>	
Exchange board AVJB ASSY	<div>Mechanical point _____</div> <div>Electric point _____</div>
	Note : ① is adjusted already.
Exchange board DVDM ASSY	<div>Mechanical point _____</div> <div>Electric point _____</div>
	Note : ② and ③ are adjusted already. When replacing the FLASH MEMORY (IC603) on the DVDM Assy, follow the "6.5 REGION SETTING".

## 6.5 REGION SETTING

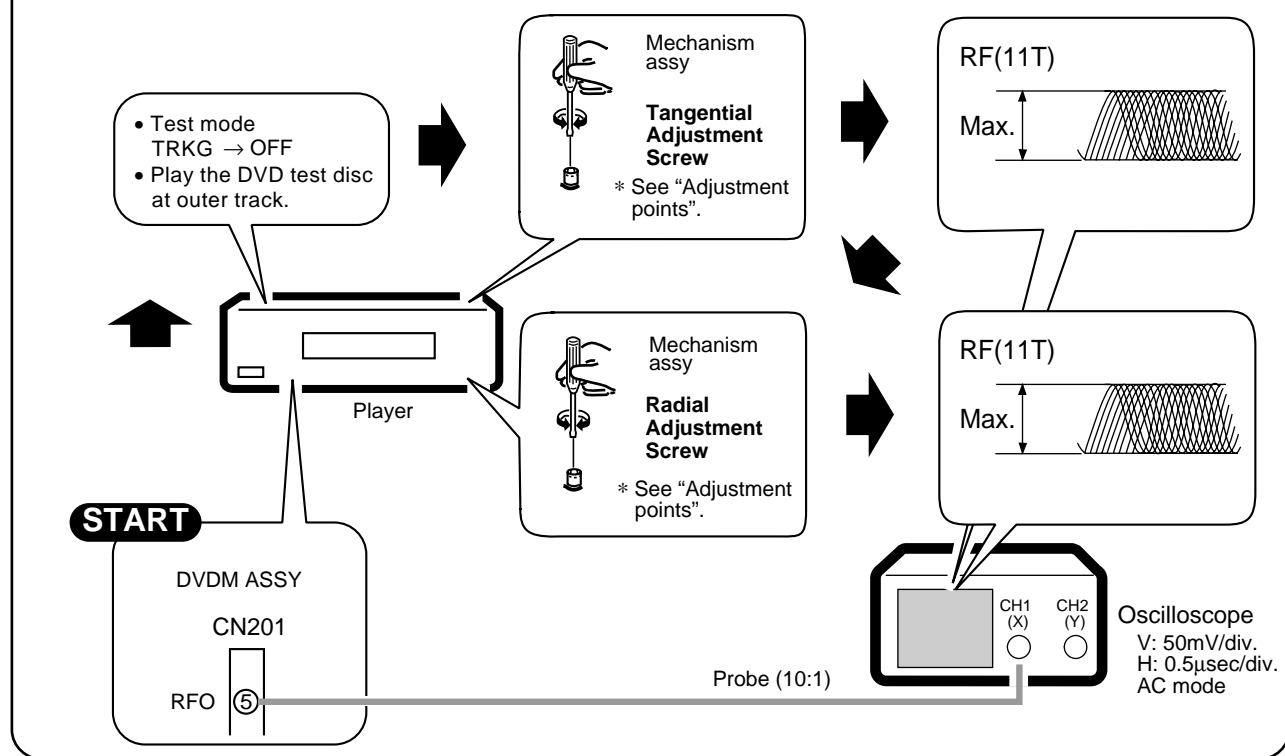
Perform this operation after confirming the region number of each destination on the cover.  
Region number decided once can be changed never again.



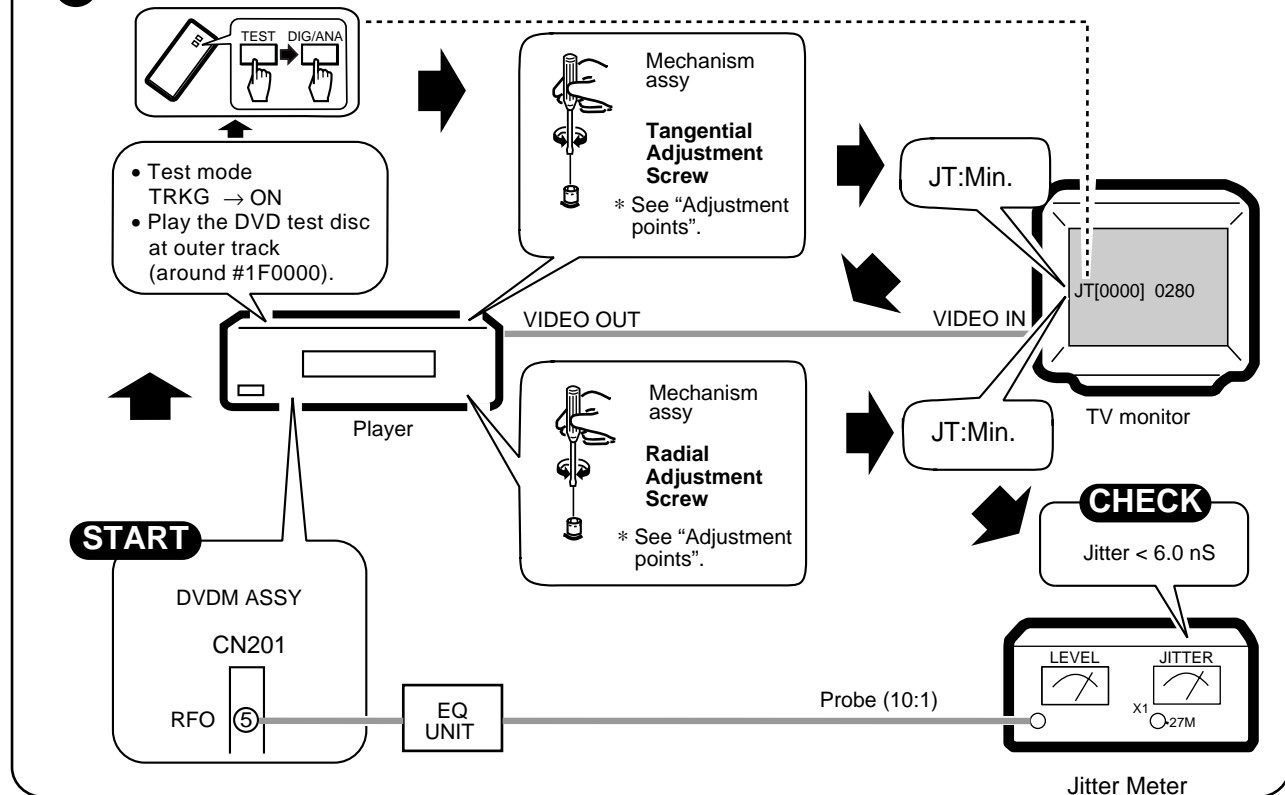
Key input the number with the test mode remote control unit (GGF1067).

## 6.6 MECHANICAL ADJUSTMENT

### 1 Tangential Skew and Radial Skew Coarse Adjustment

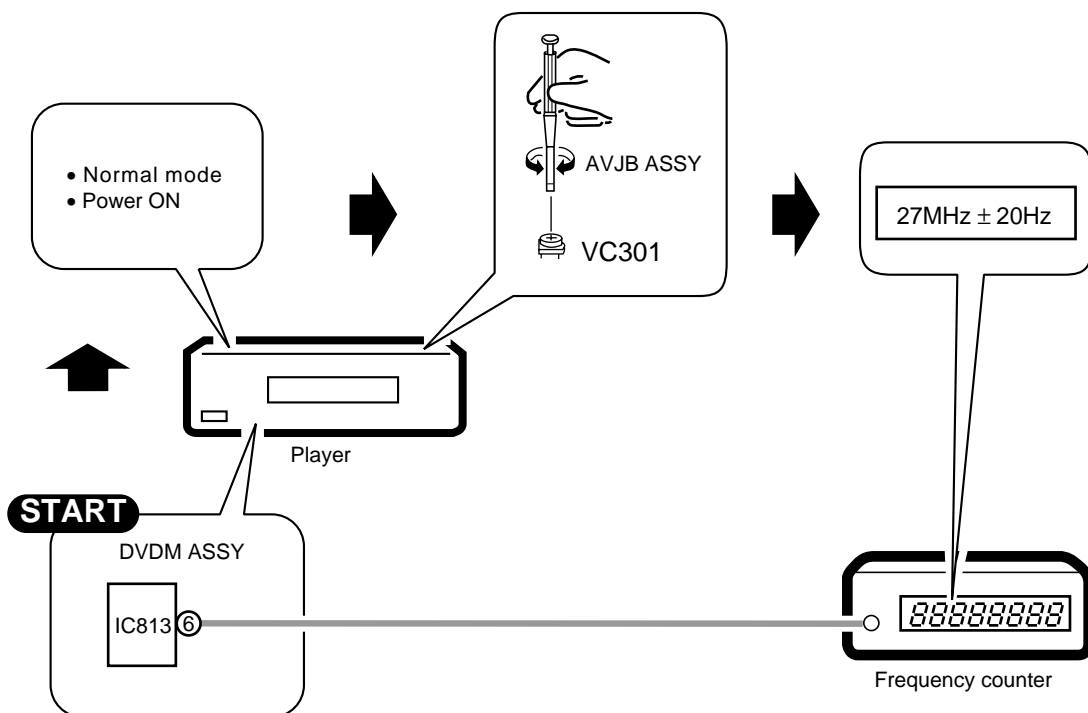


### 2 DVD Jitter Adjustment

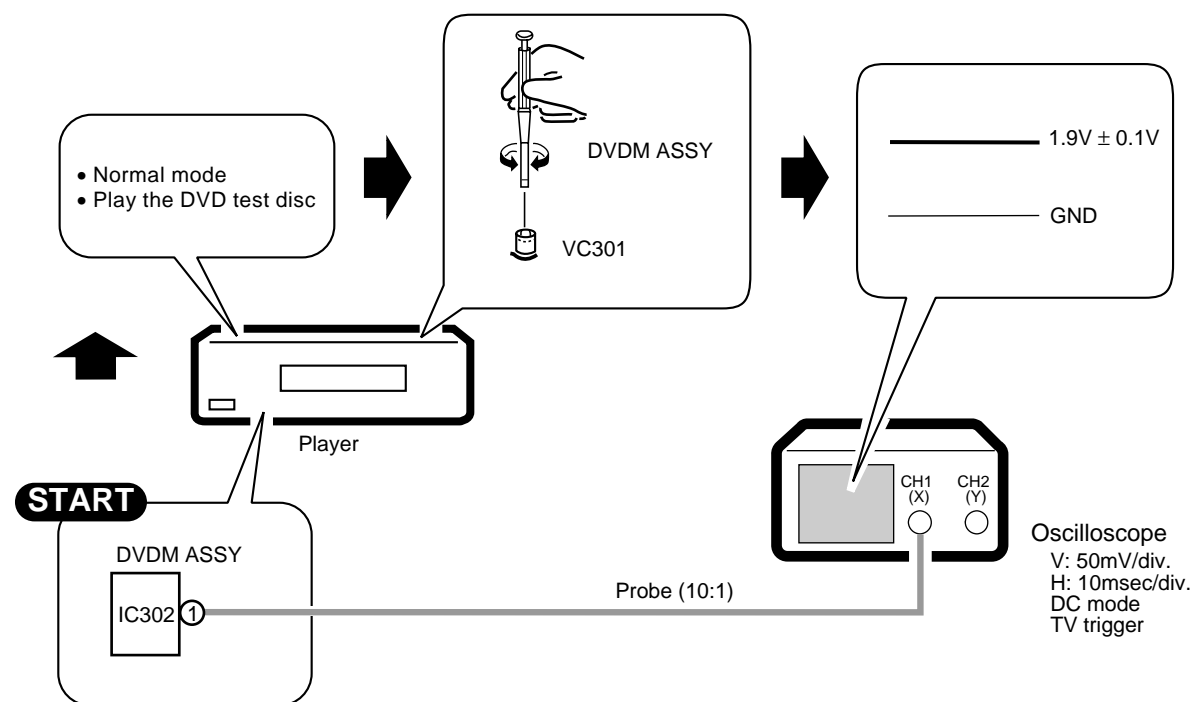


## 6.7 ELECTRICAL ADJUSTMENT

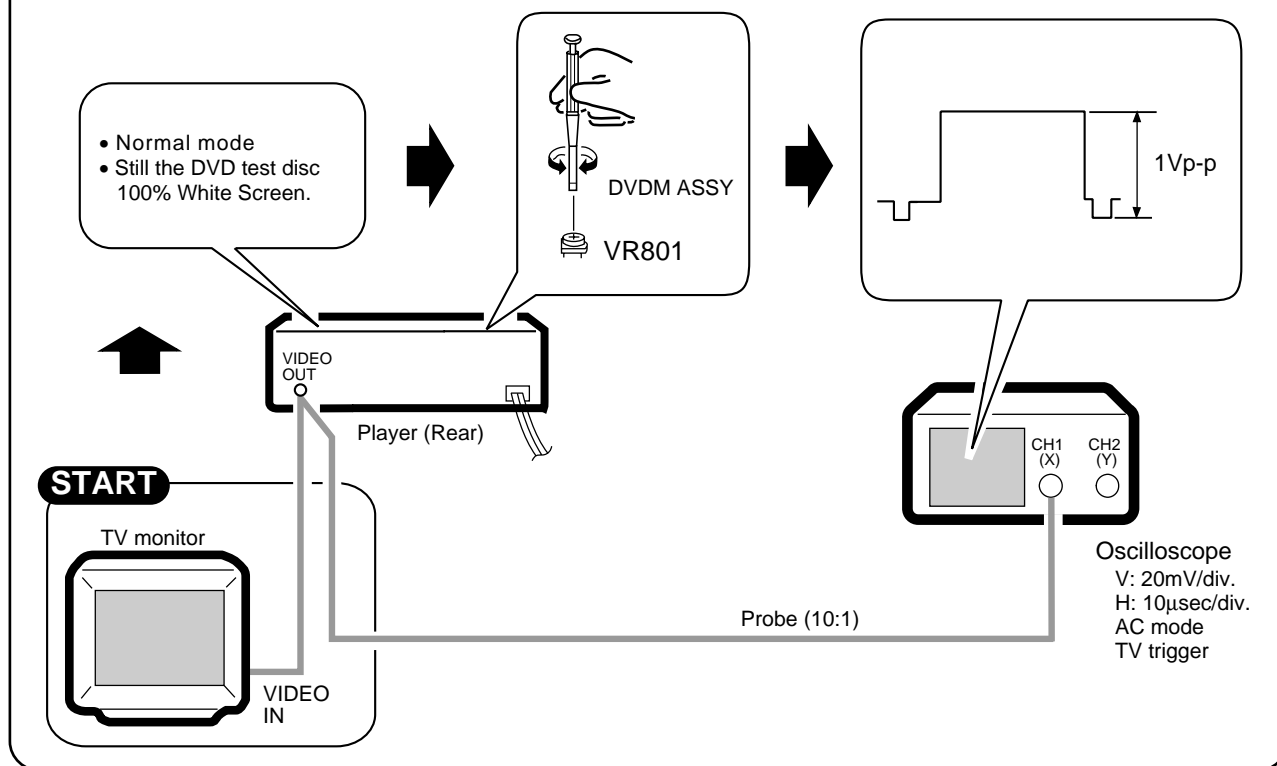
### ① 18MHz Master Clock Adjustment



### ② VCO Offset Adjustment

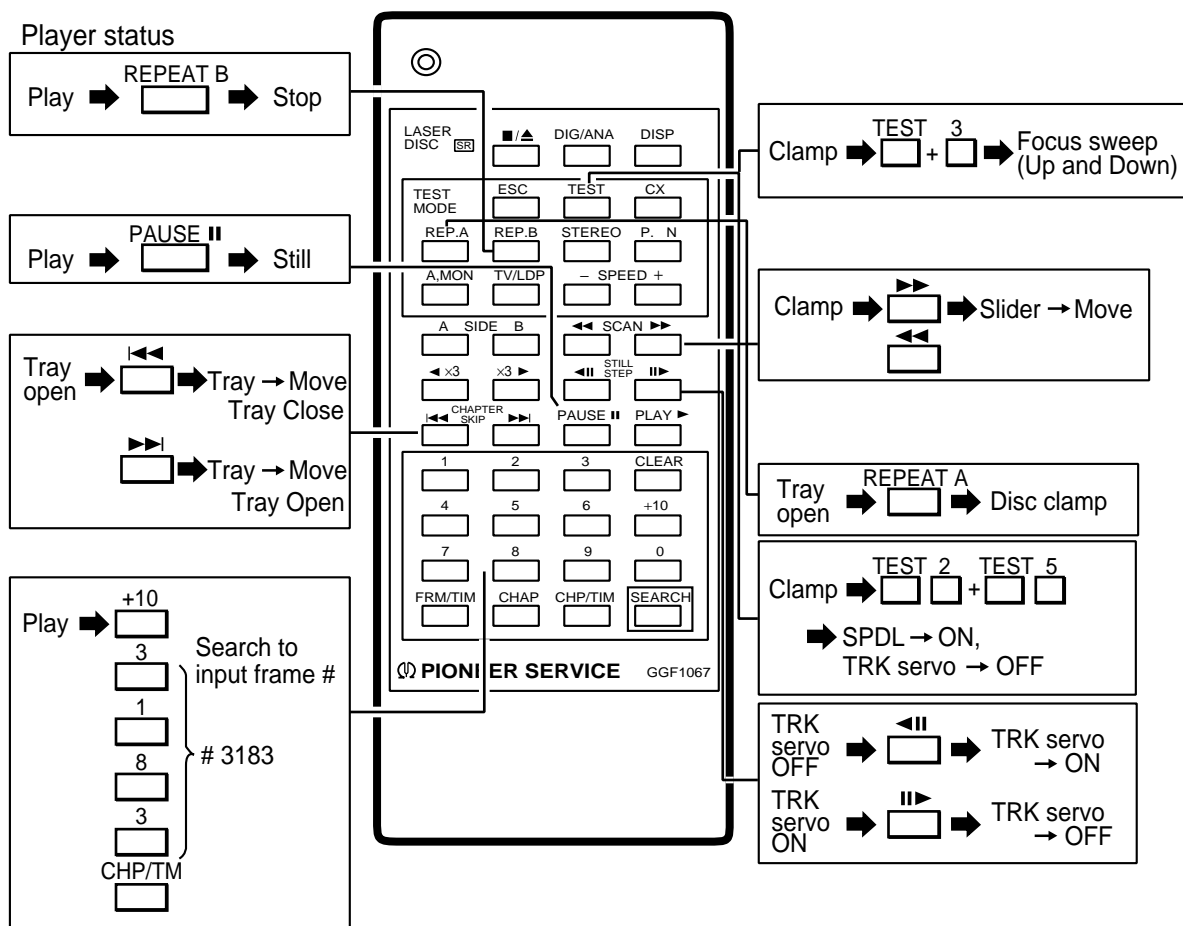


### ③ Video Output Level Adjustment

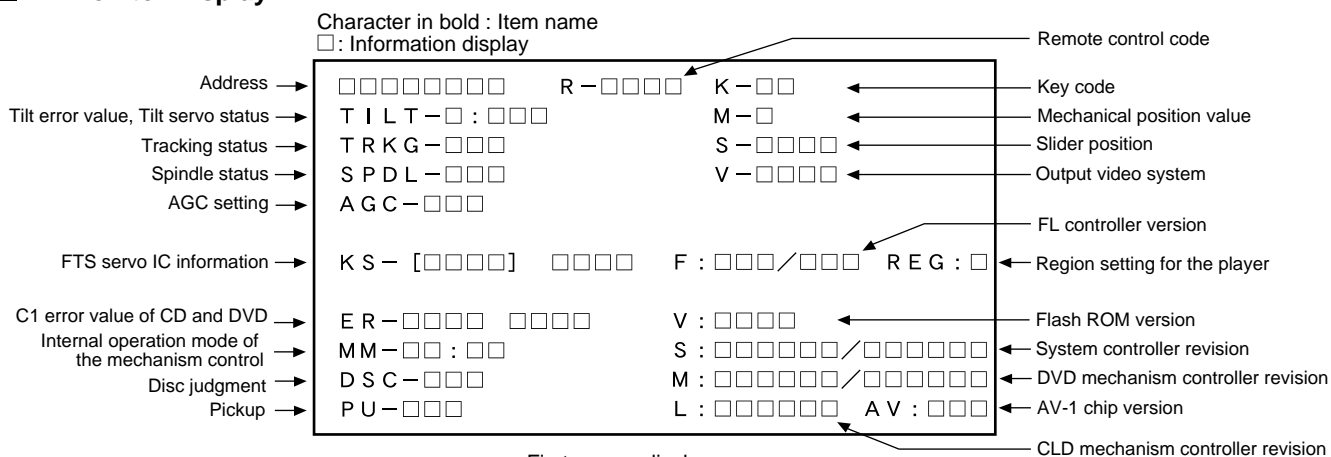


## 6.8 OPERATIONS IN THE TEST MODE

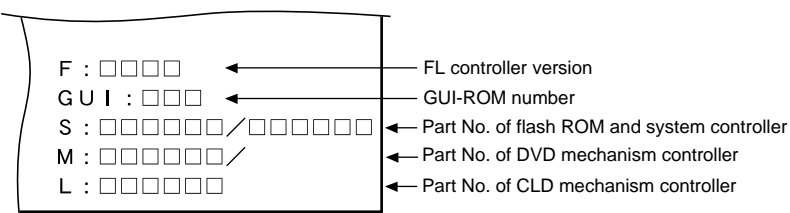
### ■ Test Mode Remote Control Unit (GGF1067)



### ■ TV Monitor Display



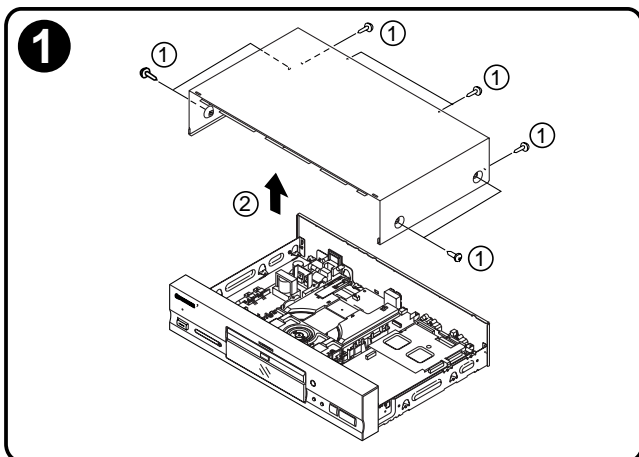
Note : Switch the first and second screen by pressing the [DISPLAY] key on the remote control unit.



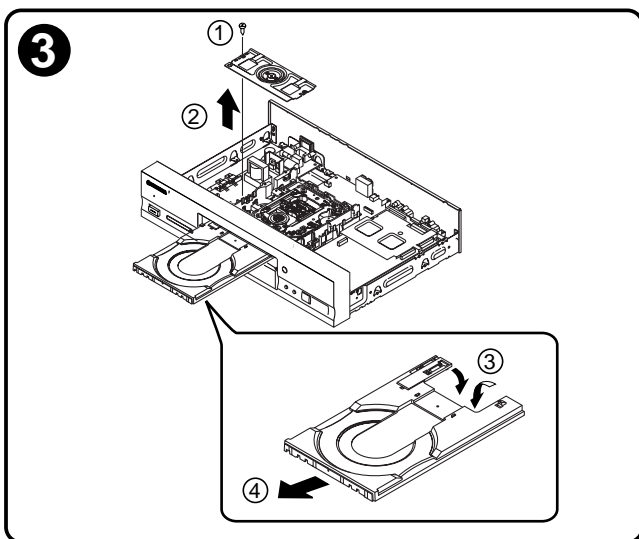
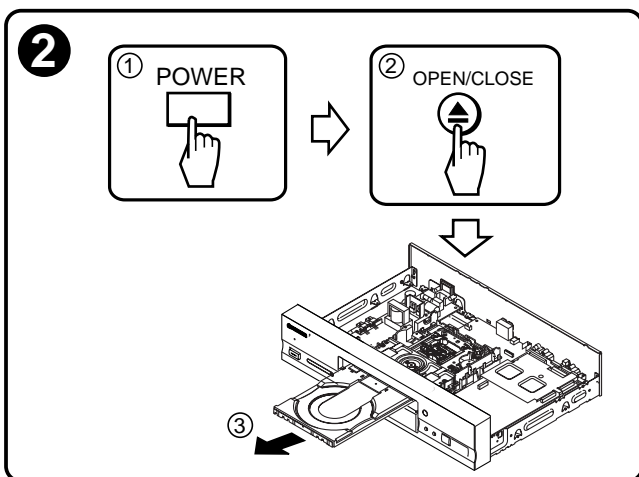
## 7. GENERAL INFORMATION

### 7.1 DISASSEMBLY

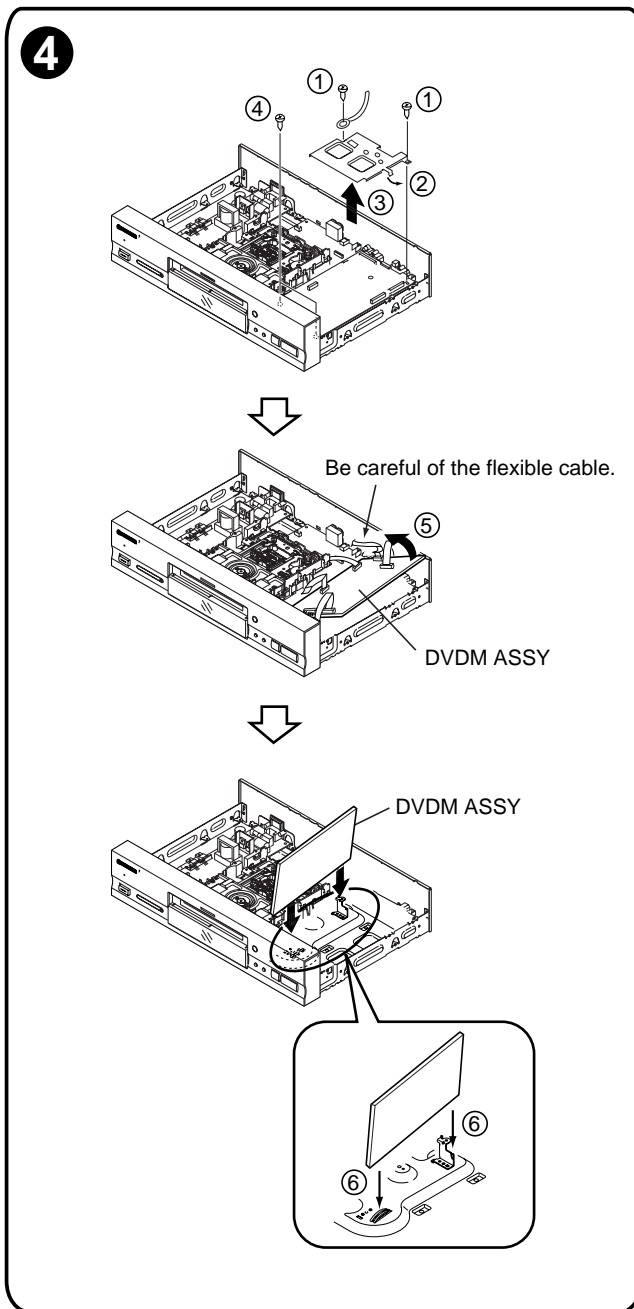
#### BONNET



#### DISC TRAY

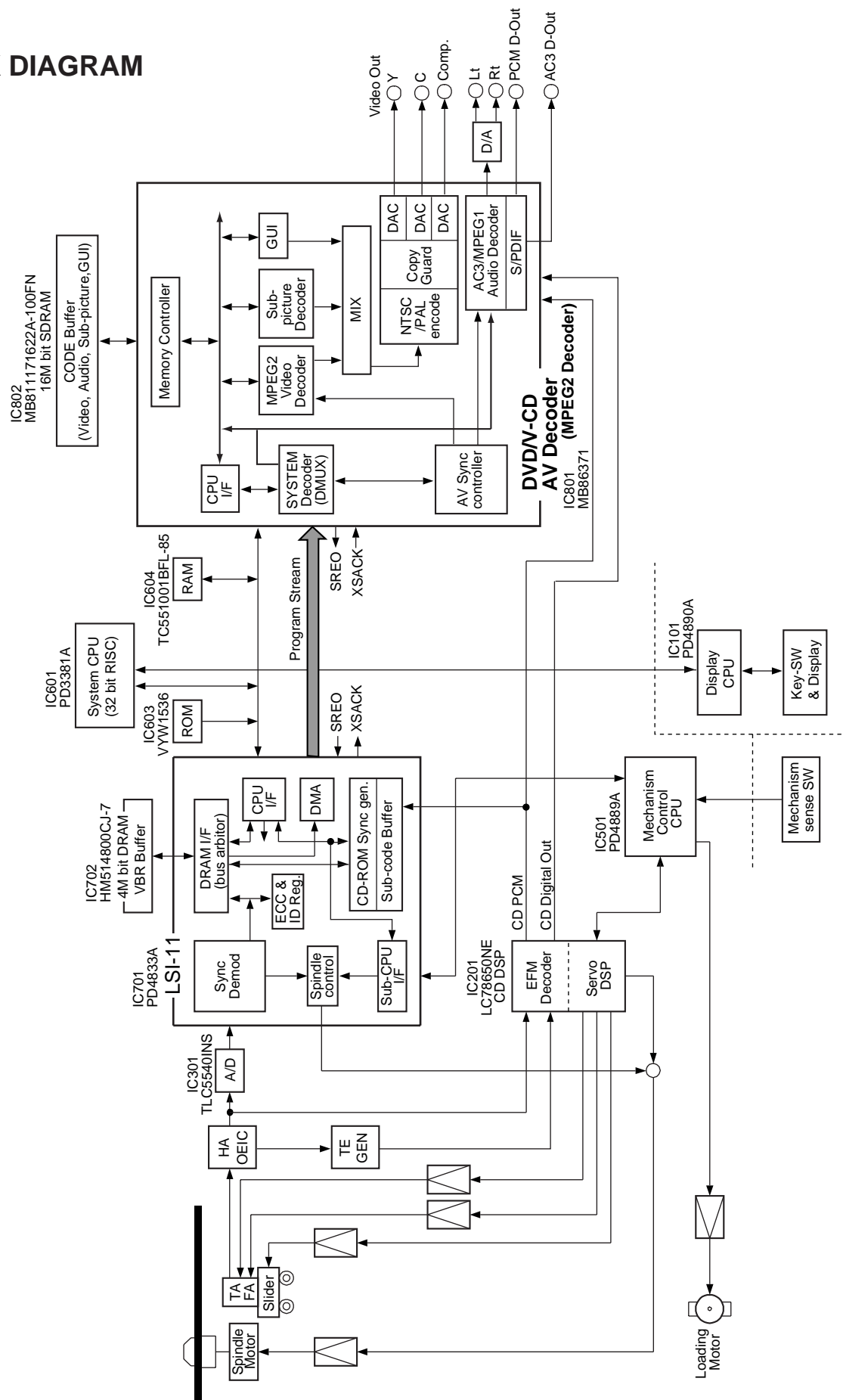


#### DVDM ASSY



Note : For the mechanism section disassembly, refer to the service guide.

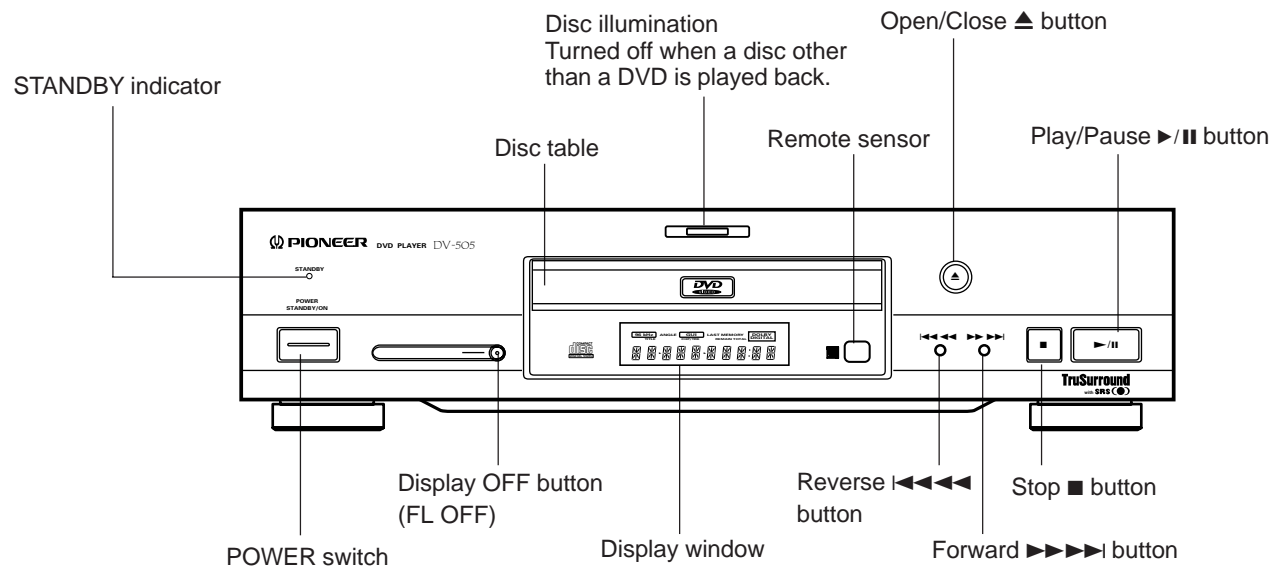
## 7.2 BLOCK DIAGRAM



8. PANEL FACILITIES AND SPECIFICATIONS

8.1 PANEL FACILITIES

FRONT PANEL



REAR PANEL

Digital Output Jack (Coaxial)

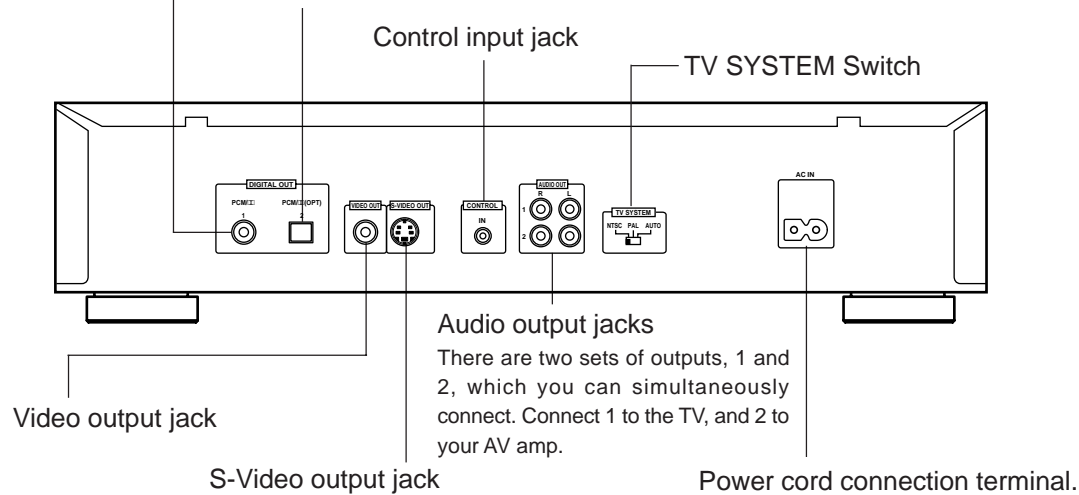
This is used for output of the digital audio signal recorded on CDs and Video CDs. Depending on the components you connect this digital output to, noise may be generated.

When connecting to an AC-3 compatible component, use the PCM/ jack. (Refer to the chart on the right.)

Your amp	Regular AV amp	Coaxial	Connect to the coaxial jack, and select PCM from the menu.
		Optical	Connect to the optical jack, and select PCM from the menu.
	AC-3 compatible amp	Coaxial	Connect to the PCM/ jack, and select PCM/DOLBY DIGITAL from the menu.
		Optical	Connect to the optical jack, and select PCM/DOLBY DIGITAL from the menu.

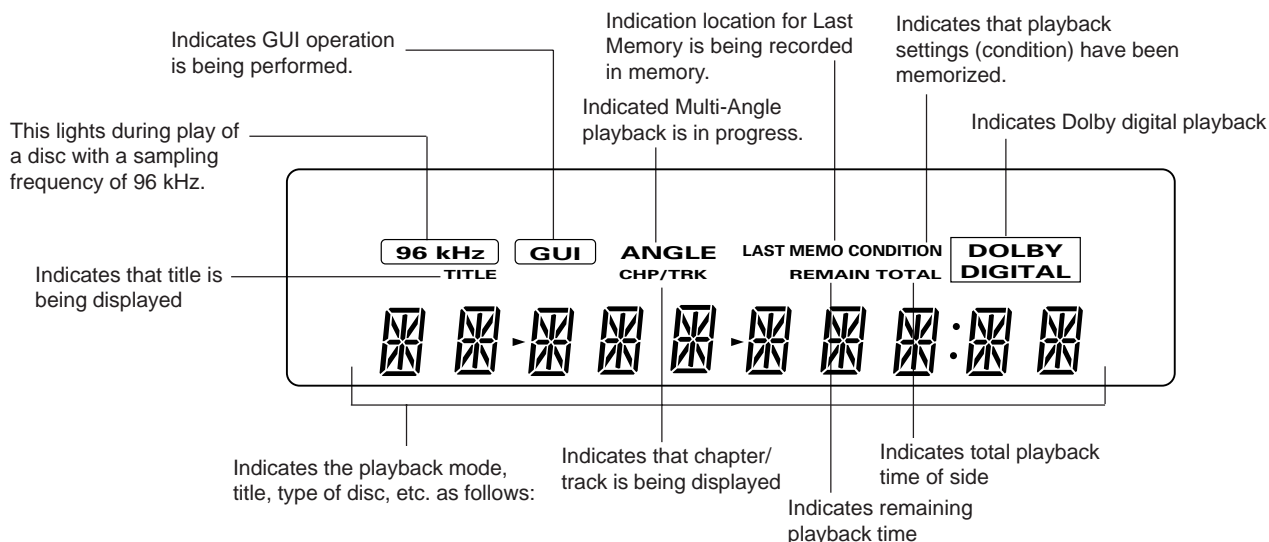
Optical Digital Output

Audio optical digital output. Switchable between PCM/DOLBY DIGITAL and PCM output.



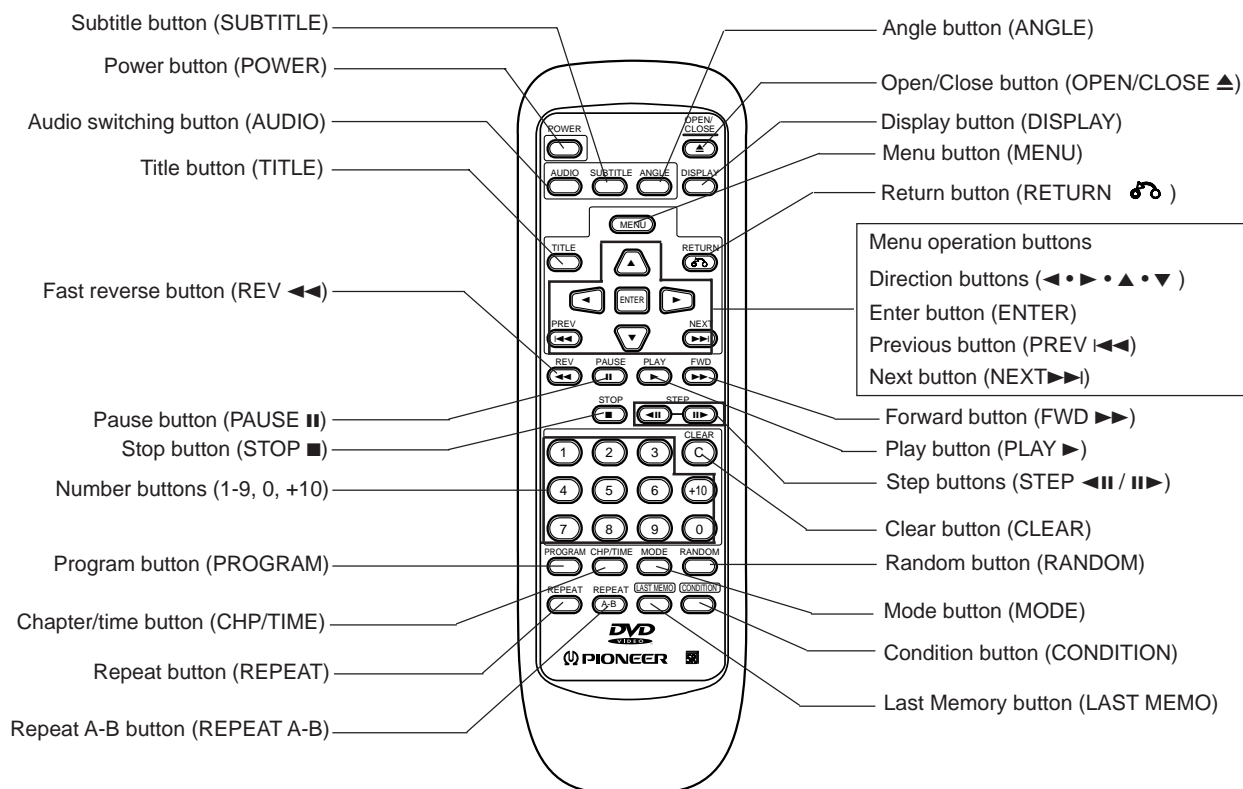


## ■ DISPLAY WINDOW



CD	:Compact disc	R_SID	:When side repeat is selected
DVD	:DVD	REPEAT TTL	:When title repeat is selected
VCD	:Video CD	REPEAT AAL	:When all repeat is selected
PBC PLAY	:Playback control playback on Video CD	REPEAT PGM	:When program repeat is selected
OPEN	:Disc table is opening or is open	PLAY	:Playback
CLOSE	:Disc table is closing	STOP	:Stop
RDM	:Random playback	PAUSE	:Pause
PROGRAM	:Program mode	NO DISC	:No disc
R_TRK	:Repeat mode	-- OFF --	:Power is turned off
R_A	:Start point of 2 point repeat playback	MENU	:Menu mode
R_AB	:2 point repeat playback	TITLE	:Title menu
R_TTL	:Repeat playback of the title	CHAPTER	:Chapter menu
R_CHP	:Repeat playback of the chapter	SUB-TITLE	:Subtitle menu
R_SID	:Disc repeat	SETUP	:Set-up menu
CINEMA	:Cinema mode	AUDIO	:Audio menu
STANDARD	:Standard mode	ANGLE	:Angle menu
REPEAT A	:When memory repeat is selected	COND_MEMO	:Condition memory
REPEAT TRK	:When track repeat is selected	LAST_MEMO	:Last memory
REPEAT CHP	:When chapter repeat is selected		

## ■ REMOTE CONTROL



## 8.2 SPECIFICATIONS

### • For DV-505/RD/RC, RAM and RL types

#### General

System ..... DVD system, Video CD system and  
Compact Disc digital audio system  
Laser ..... Semiconductor laser: wavelength 635 nm  
Power requirements: ..... AC 110-120 V/220-240 V, 50/60 Hz  
Power consumption ..... 21 W  
Weight ..... 2.9 kg (6 lb 6 oz)  
Dimensions ..... 420 (W) x 284 (D) x 104 (H) mm  
(16 <sup>9</sup>/<sub>16</sub> x 11 <sup>5</sup>/<sub>16</sub> x 4 in.)  
(Not including protruding cables, etc.)  
Operating temperature ..... +5°C to +35°C (+36°F to +96°F)  
Operating humidity ..... 5% to 85% (no condensation)

#### S-Video Output

Y (luminance) - Output level ..... 1 Vp-p (75Ω)  
C (color) - Output level ..... 286 mVp-p (75Ω)  
Jacks ..... S-VIDEO jack

#### Video Output

Output level ..... 1 Vp-p (75Ω when loaded, synchronous negative)  
Jacks ..... RCA



#### Audio Output (2 pairs)

Output level  
During audio output ..... 200 mVrms (1 kHz, -20 dB)  
Number of channels ..... 2  
Jacks ..... RCA

#### Digital audio characteristics

Frequency response	4 Hz to 22 kHz (DVD fs: 48 kHz) 4 Hz to 20 kHz (CD)
S/N ratio	115 dB (EIAJ)
Dynamic range	97 dB (EIAJ)
Total harmonic distortion	0.003 %
Wow and flutter	Limit of measurement (±0.001% W. PEAK) or lower (EIAJ)

#### Other Terminals

Optical digital output (PCM/ ) ..... Optical digital jack  
Coaxial digital output (PCM/ ) ..... RCA jack  
CONTROL IN ..... Minijack (3.5ø)

#### Accessories

Remote control unit ..... 1  
AA (LR6) dry cell batteries ..... 2  
Audio cord ..... 1  
Video cord ..... 1  
Power cord ..... 1  
Operating Instructions ..... 1

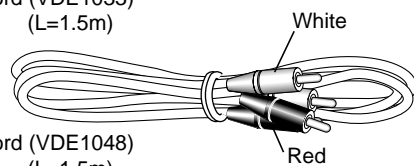
#### NOTE:

The specifications and design of this product are subject to change without notice, due to improvement.

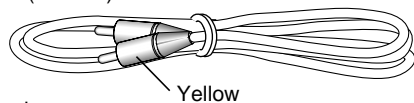
"Dolby, Digital (AC-3)" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

#### ■ Accessories

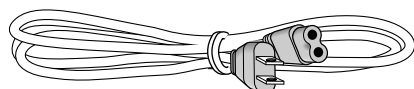
Audio cord (VDE1033)  
(L=1.5m)



Video cord (VDE1048)  
(L=1.5m)

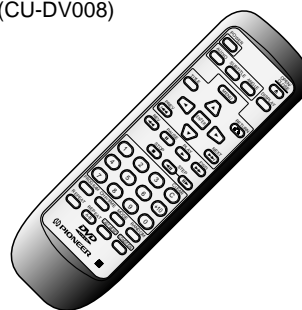


Power cord

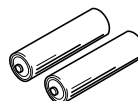


ADG1154 (WY, RL Type)  
ADG1127 (WY/RD, WYW/SP Type)  
ADG7003 (RD/RC Type)  
ADG7017 (RAM Type)

Remote control unit (VXX2540)  
(CU-DV008)



Batteries ..... 2



#### Other included items :

- Warranty card
- Operating Instructions (this manual)

# Service Manual

 **PIONEER®**  
*The Art of Entertainment*

ORDER NO.  
**RRV1975**

DVD PLAYER


















# DV-505

- Refer to the service manual RRV1889 for DV-505/KU.

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks	Regional restriction codes (region number)
	DV-505			
KU/RD	○	AC120V		4

CONTRAST OF MISCELLANEOUS PARTS

- NOTES :
- Parts marked by “ NSP ” are generally unavailable because they are not in our Master Spare Parts List.
  - The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
  - Reference Nos. indicate the pages and Nos. in the service manual for the base model.
  - When ordering resistors, first convert resistance values into code form as shown in the following examples.
- Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).
- 560 Ω → 56 × 10<sup>1</sup> → 561 ..... RD1/4PU    J
- 47k Ω → 47 × 10<sup>3</sup> → 473 ..... RD1/4PU    J
- 0.5 Ω → R50 ..... RN2H    K
- 1 Ω → 1R0 ..... RS1P    K
- Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
- 5.62k Ω → 562 × 10<sup>1</sup> → 5621 ..... RN1/4PC     F

CONTRAST TABLE

DV-505/KU/RD and KU are constructed the same except for the following:

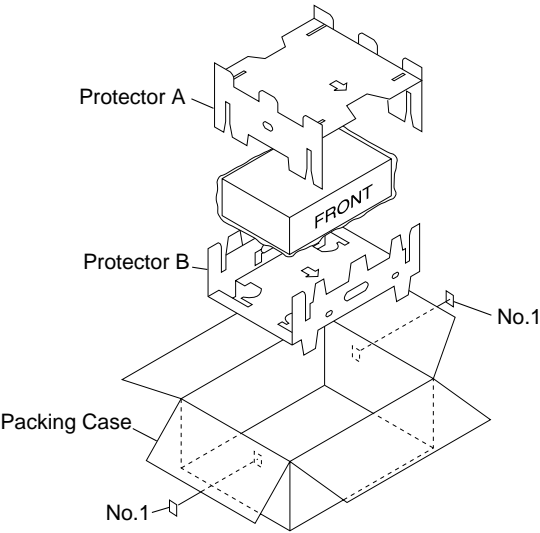
Ref. No.	Mark	Symbol and Description	Part No.		Remarks
			KU type	KU/RD type	
P5- 1		PCB ASSEMBLIES FLKY ASSY └ FLKB ASSY	VWM1789 VWG1873	VWM1881 VWG2008	*1
P3- 3		PACKING Warranty Card Label (Region)	ARY1044 Not used	Not used VRW1705	*2, No.1
		BOTTOM VIEW SECTION Label (Region)	Not used	VRW1704	*2, No.2

\*1 Refer to “ CONTRAST OF PCB ASSEMBLIES ” .

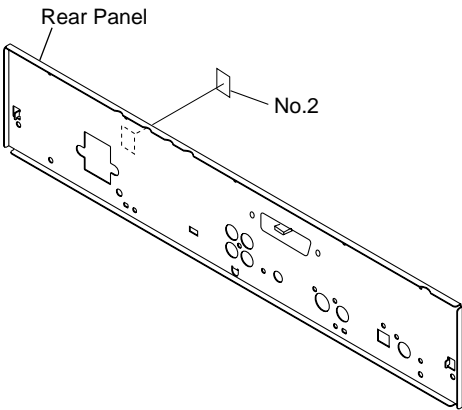
\*2 The numbers in the remarks column correspond to the numbers on the “ EXPLODED VIEWS ” .

EXPLODED VIEWS

PACKING



BOTTOM VIEW SECTION



**■ CONTRAST OF PCB ASSEMBLIES****E FLKB ASSY**

VWG2008 and VWG1873 are constructed the same except for the following:

Mark	Symbol and Description	Part No.		Remarks
		VWG1873	VWG2008	
	R128 R138	RS1/10S622J RS1/10S363J	RS1/10S123J RS1/10S472J	